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THE IMPORTANCE OF DISTURBANCES IN NUTRITION IN EDEMATOUS STATES*

BY WARFIELD T. LONGCOPE, M.D.†

ONE of the most notable contributions that has been made to medicine during the last quarter of a century is the discovery of the accessory food factors, the vitamins. With a comprehension of the significance of the vitamins has come an increasing interest in the subject of malnutrition in its broadest sense. As a result of innumerable investigations the tendency has grown within recent years to gather into one group a number of disease states that have been defined somewhat loosely as the deficiency diseases. The deficiency which is common to all of them is an inadequate amount of some substance in the food which is necessary to the body for its proper nutrition, or the inability of the body to absorb, or to prepare for absorption, these necessary substances even though the diet contains sufficient quantities of them.

The disturbances in nutrition that result from these defective diets or from the inability to utilize the constituents of a completely adequate diet are numerous and very varied. It is not necessary to dwell upon those well-defined diseases, such as scurvy, which are caused by the lack of specific vitamins, or to emphasize in this gathering the brilliant work of Minot and Murphy and of Castle on pernicious anemia. It would not be amiss, however, to recall the fact that it is not ordinarily an inadequate diet that causes pernicious anemia but the inability of the stomach to form the necessary factor, present in normal liver, that is essential to the proper formation of red cells.

Although pernicious anemia, pellagra, sprue, possibly the idiopathic steatorrhea or celiac disease, and even hunger edema possess individual characteristics that give them the distinction of clinical and etiological entities, there are considerable numbers of patients who suffer from profound disturbances of nutrition in which the clinical picture is not so clear cut, and in which, in addition to malnutrition, several features peculiar to two or more of the above diseases may be combined in a most confusing manner. The variations in symptoms and signs may be numerous. There may be great loss of weight, anemia either of the microcytic or macrocytic type, persistent diarrhea, glossitis, steatorrhea, skin eruptions, abnormalities in mineral metabolism and alterations in the exchange of fluids, so that in some patients there is dehydration of the subcutaneous tissues while in others such extensive edema that it becomes one of the predominant features of the illness.

The complexity of the situation, as we have observed it in several patients during the last few years, the comparative frequency of edema in mild states of malnutrition, and the presence of edema in some forms of dietary deficiency under unexpected circumstances have led us to pay some attention to these conditions.

Since a large part of our work as physicians must unfortunately be devoted to the repair of function rather than to the restitution of damaged organs, it is desirable to analyze in some detail the cause of symptoms in the hope that we may find some way of eliminating them or of shedding more light on the entire disease process. It is with this idea in mind that I would like to discuss the question of nutritional edema and to describe the observations that we have made in a few patients suffering from this condition. In none of these patients was there disease of the heart or kidneys, so that for the moment we are not concerned with either cardiac or nephritic edema.

It is not my intention, and it is quite beyond my province, to discuss the complicated problem of edema in general. It is necessary, however, to state briefly some of the views that are now generally held concerning the different factors that may, in one way or another, be held responsible for the formation of subcutaneous edema or effusions into the serous cavities.

According to most authorities it is supposed that at least four factors may be concerned with the accumulation of abnormal amounts of fluid in the connective tissue spaces or serous cavities or, in other words, with the production of edema. The first of these is the state of permeability of the capillary or vessel wall. Injury of the vessel wall allows fluid to escape into the surrounding tissues. Inflammatory edema and angioneurotic edema arise in this manner. The second is concerned with the quantitative and qual-

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†Longcope, Warfield T.—Professor of Medicine, Johns Hopkins Medical School. For record and address of author see "This Week's Issue," page 1297.

itative relationships between the electrolytes in the blood and tissue spaces; the third is the elevation of hydrostatic pressure within the capillaries or small blood vessels, which is of particular importance in the formation of edema in congestive heart failure; and the fourth is the amount of colloid osmotic pressure exerted by the plasma proteins. The last three of these forces act in relation to somewhat equivalent conditions in the tissue spaces, and it is largely a disturbance in the equilibrium normally maintained between the intravascular and extravascular forces that leads to a reversal of the normal exchange of fluids and electrolytes, and that determines the accumulation of fluid, as dropsy, in the tissue spaces or serous sacs.

Before considering the matter in its clinical aspect it is necessary to dwell for a moment on one theory of the formation of edema to which I shall have frequent occasion to refer. This is the importance of the relation of the colloid osmotic pressure of the proteins of the blood plasma to the formation of edema. Starling[1] first propounded the theory that the filtration of fluid from the blood vessels to the tissue spaces depended upon the balance between the hydrostatic pressure within the blood vessels and the colloid osmotic pressure of the plasma, the former tending to force fluid from the blood vessels into the tissues, the latter tending to hold fluids within the blood vessels. The theory has been developed experimentally by Govaerts[2] and again recently by Landis[3]; and it has been supported by the work of Leiter[4] and of Barker and Kirk[5]; it upholds Epstein[6] in his conception of the origin of nephrotic edema and it is dealt with fully by Van Slyke and Peters[7] and by many investigators who have recently devoted considerable attention to this phase of the problem.

From the extensive investigations that have been made on this subject it is generally assumed, according to the work of Moore and Van Slyke that when the total plasma proteins fall from their normal level of 6.0 to 8.0 grams per cent to 5.5 grams per cent, edema is likely to develop. This is due to the resulting decrease in colloid osmotic pressure of the plasma. The most important protein, in this respect however, is the albumen, for it not only forms about 60 per cent of the plasma protein, but is estimated to have a colloid osmotic pressure, according to Govaerts[2] of 5.5 mm. of Hg per gram, whereas globulin forming only about 40 per cent has a colloid osmotic pressure of only 1.4 mm. of Hg per gram. Thus decrease of the plasma albumen is much more effective than decrease of plasma globulin in leading to a reduction in the colloid osmotic pressure of the plasma.

Therefore it is conceivable that any abnormality which leads to a continuous loss of albumen from the body may result, sooner or later, in a serious depletion of serum albumen and consequently predispose to the formation of dropsy. A familiar example is the edematous form of Bright's disease in which large amounts of serum albumen are lost daily in the urine. There are other ways, however, in which the body may lose large amounts of protein, for this may occur after repeated hemorrhages, from draining wounds, through empyema sinuses, from chronic inflammations of the bowel, and from diseases of the gastro-intestinal tract that interfere with the normal absorption of protein. Though these may be of secondary importance, they must occasionally be taken into consideration.

Undoubtedly the most important and the commonest method of depriving the body of protein, however, is through a prolonged or excessive reduction of protein in the diet. Though it has only recently been discovered, as I shall point out, that there is a close connection between protein starvation and the formation of edema, the occurrence of dropsy in states of advanced undernutrition has attracted attention for centuries[8, 9]. It has been described as occurring in epidemics, and for this reason has been called "epidemic dropsy". The descriptive terms used in the literature serve in themselves to indicate the conditions under which it was likely to occur; for we find it referred to as "war edema", "prison dropsy", "hunger swelling" and "deficiency edema". There are interesting accounts of the dropsy which was widespread in the French Army during the Wars of the Sixteenth Century and which was common in the armies of Napoleon. The interesting observation was also made that the swelling was much greater in the soldiers on march or on duty than in those too sick to move about. Many children confined in Paris during the Siege of 1870-71 became edematous, and in the great famines of India and Russia the people have been described as "swollen with hunger".

Edema of both children and adults was very common in the central countries of Europe during the war and received an exhaustive study by Schittenhelm and Schlecht[9]. They observed that the edema was marked when the patients were up and about, but that it was likely to disappear when they were put to bed, and they pointed out that the diet was largely fluid, grossly deficient in protein and very rich in salt. Shortly after the war Mayer[8], after making a survey of these types of edema, came to the conclusion that the disease did not seem to be a deficiency disease, in the sense that the diet was deficient in one or more specific unknown constituents, such as the vitamins, but in a broader sense it was a deficiency disease since the diet was very low in total calories and was lacking particularly in protein. Denton and Kohman[10] had already shown that a large proportion of rats fed on a diet of carrots developed edema when nitrogen in the diet was reduced, and the necessary calories substituted by

the addition of some non-nitrogenous food stuffs such as carbohydrate and fat; while at about the same time Kohman[11] had been able to prevent the edema occurring in rats which were fed on carrots but supplied with adequate amounts of vitamins by adding a sufficient quantity of protein to the ration without changing the caloric value. Frisch, Mendel and Peters[12] were finally able to demonstrate that the one necessary component of the food which would prevent rats from showing edema during similar feeding experiments was protein. They also found that restriction of the protein of the food of the rats was accompanied by a reduction in the proteins of the plasma, and that there was a close correlation between the degree of the reduction of plasma proteins and the occurrence of edema.

These experiments have opened a way for the study of many types of edema in which the depletion of plasma proteins may come from the privation of protein rather than from the loss of protein from the body. Though the total plasma proteins and their fractions have been determined in a great number of diseases[13], it is to Peters[14] and his collaborators that we are particularly indebted for demonstrating the frequency with which low plasma proteins and especially low values for plasma albumen are associated on the one hand with malnutrition and, on the other, with edema. They have shown that the three conditions, malnutrition, hypoproteinemia and edema may be related in diseases as varied as diabetes mellitus, neoplasms, infections of various sorts, anemia and disease of the liver.

Nutritional diseases of all sorts are prevalent in China, and the frequent occurrence of edema in these patients induced Weech and Ling[15] to investigate the relationship between the occurrence of dropsy and the level of plasma proteins in eighteen patients. The diets of these patients were deficient in all respects, but particularly in the protein food stuffs of animal origin. They found a fairly close correlation between the level of total plasma proteins and the development of edema, but the relationship was most definite between the albumen deficit and the dropsy. They state that edema was never absent, except in one case, when the serum albumen was less than 2.5 grams per 100 cc. and was never present when, during convalescence, the serum albumen was greater than 2.9 grams per 100 cc. of plasma, the normal range in their experiments being 3.6 grams to 5.0 grams of serum albumen per 100 cc. of plasma. Youmans[16] and his collaborators have estimated the plasma proteins in thirty-one patients who suffered with mild edema supposedly due to chronic malnutrition. In the majority of these patients the total plasma proteins were normal, but in many the plasma albumen was slightly, though not remarkably, reduced below the normal. It was only in an occasional instance that the total plasma proteins, the plasma albumen or the colloid osmotic pressure was lowered to what is generally regarded as the critical level for the appearance of edema. Youmans raises the question, on this account, as to whether there might be additional factors in these patients that contribute to the formation of edema.

Though lack of protein in the food and subsequent hypoproteinemia seem to form the basis for the production of nutritional edemas, it is undoubtedly necessary to consider whether there may not be accessory factors that must be taken into account; for discrepancies are observed and profound nutritional disturbances may be seen without edema, and edema may be present with relatively high plasma proteins[16, 17].

It has repeatedly been observed that when poorly nourished people or animals drink large quantities of water the edema increases[8, 9, 10, 11, 12], and it has been pointed out that this is one of the essential features in the formation of war dropsy and famine edema. Perhaps of even more importance is the relation which the use of sodium chloride and sodium bicarbonate bears to the formation of these edemas[18], for it has been shown[15, 17] that the administration of sodium chloride and sodium bicarbonate to patients with nutritional edema leads to a rapid increase in the dropsy and that the administration of sodium chloride or sodium bicarbonate to dogs with experimentally induced hypoproteinemia precipitates or exaggerates the edema[19, 20]. It seems probable, too, both from the repeated observations made upon the war and famine edemas and from more exact studies recently reported[21] that the erect position exaggerates the edema when it is present, or may be the determining factor in causing the appearance of dropsy when the edema is, so to speak, latent. Mild degrees of heart failure may also exert an important influence in exaggerating or precipitating edema, and since the symptoms of myocardial failure are common in severe anemia, this factor must also be taken into account in some instances of nutritional dropsy. The postoperative nutritional edema, in which at times the dropsy may reach serious proportions, prevents a most complicated problem. The recent studies of Jones, Eaton and White[24] indicate how many accessory factors must be taken into consideration. Nitrogen starvation is of prime importance, but the administration of excessive amounts of water and of sodium chloride, the drainage of serous material or the presence of infections may be the determining factor in the actual appearance of edema; may exaggerate it, or serve to prolong the dropsy.

The occurrence of edema, associated with improper digestion or absorption of protein has received much less attention than the starvation edemas. Yet edema of varying degree is not un-

common in many diseases of the gastro-intestinal tract. Landis and Leopold[22] have reported a case of tuberculous enteritis in which edema was associated with low colloid osmotic pressure of the plasma proteins. Transfusions of blood and a high protein diet were followed by a subsidence of the swelling and a noticeable increase in the colloid osmotic pressure of the serum.

I would now like to draw your attention to some rather unusual examples of nutritional edema. The first case is one of amebic dysentery complicated by a remarkable degree of anasarca appearing during the course of the attack.

The patient was a colored laborer forty-seven years of age (Unit 45358) who was admitted to the Johns Hopkins Hospital on September 14, 1932 complaining of diarrhea of five months' duration and swelling of the legs of two months' duration. Fifteen years previously he had had a similar attack of diarrhea at which time his legs were swollen. In the interval he had been quite well. There had been no symptoms to suggest heart or kidney disease. After a dietary indiscretion five months before admission he had suddenly developed a watery bloody diarrhea which had persisted up to the time of his admission to the hospital. At the onset there was abdominal pain, but he had not had chills, and had not noticed fever or night sweats. For three months he had had swelling, beginning in the ankles and extending up the legs until within a few days of admission it had involved most of his body. During the greater part of his illness he had been up and about and at no time had he restricted his diet, for he had eaten much the same food as when he was well. He appeared to be a well-developed, somewhat pale Negro, with a temperature of 98.6°, pulse 70, respirations 18. He showed widespread anasarca with soft pitting edema over the legs, abdomen, back, chest and arms, and râles at the bases of the lungs. The heart was normal in size, the sounds were clear except for a soft systolic murmur at the pulmonary area; the blood pressure was 150/98. The spleen and liver were not palpable, but there was evidence of ascites. There was moderate anemia, the Hb. being 68 per cent, the red blood cells 3,550,000. The leucocytes were 8,400, with 64 per cent polymorphonuclears. The urine had a specific gravity of 1.011, showed no sugar, a faint trace of albumen and no casts. The Wassermann reaction was negative. The stools showed blood, mucus, and many active amebae histolyticae. The total serum proteins were 3.77 grams per cent.*

The chart (fig. 1) shows in outline the course of the illness. It is to be noted that the edema is associated with a remarkably low total plasma protein with great reduction in the plasma albumen. The estimated colloid osmotic pressure of the plasma was only 11.12 mm. of Hg compared with a normal of about 26. On rest in bed, a low residue salt-poor diet, containing 120 grams of protein, and a course of yatren, the improvement was rapid. The diarrhea soon ceased, the edema subsided as the blood proteins increased, the anemia improved, and within twenty-four days after admission the patient was practically well; the total proteins had increased to 6.39 grams per cent, a normal figure, and the calculated colloid osmotic pressure was doubled (21.47 Gm. per cent). There appeared to be a close relationship between the low plasma proteins and the occurrence of anasarca in this patient. On the other hand the manner in which the body was deprived of protein is not quite clear. Although the man stated that he had eaten his customary amount of food including meat, the diet may have been somewhat inadequate. It is more probable, however, that protein was not properly digested or was not absorbed in adequate amounts, for even the supernatant fluid of the stools was found to contain six grams of protein per liter. Some protein must also have been lost in the blood in the stools.

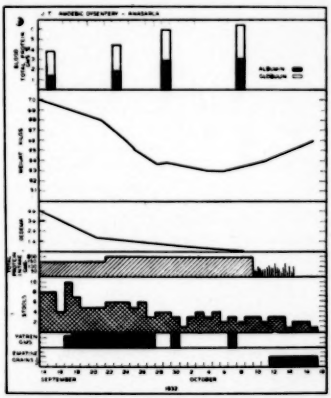

FIG. 1. Case 1. Showing the changes in plasma proteins, the variations in weight, the loss of edema, the total protein in the diet, the number of stools per day, and the treatment.

In the next patient the cause for the protein deprivation was quite obvious.

She was a white woman of fifty-six (Unit 45759) who was admitted to the Johns Hopkins Hospital on October 8, 1932, complaining of weakness, anorexia, diarrhea and sore tongue. She had generally been very healthy until four months before admission when she had slipped and sustained a fracture of the neck of the left femur. She was taken to a hospital, placed in a splint, and because of constipation given frequent enemata. Food disagreed with her, she had nausea and vomiting, and two months after her injury developed profuse and intractable diarrhea. She ate almost no food, became emaciated, and a few days before admission to the Johns Hopkins Hospital her tongue became very sore. On admission she appeared quite ill with a temperature of 98° F., pulse 116, and respirations 20. She had lost much weight, but the legs were edematous. The tongue was beefy red and showed small ulcers. The lips and skin were very pale; the lungs were clear to percussion and auscultation, the

*The plasma proteins were determined, in a few instances, by the refractometric method; but as a rule Howe's method was employed, and the estimations were made under the direction of Dr. Mary Y. Buell.

Howe, P. E.: The determination of proteins in blood—A micro method. J. Biol. Chem., 49:109, 1921.

heart was normal in size; there were no murmurs, and the blood pressure was 110/70. The urine was clear, specific gravity 1.020, acid, there was no sugar or albumen but large amounts of acetone and diacetic acid. The Hb. was 65 per cent, the red blood cells 3,630,000, leucocytes 9,140 with 88 per cent polymorphonuclears. The total plasma proteins were 4.60 grams per cent. She was given a transfusion of 500 cc. of citrated blood and feeding was started by nasal catheter. The edema increased, the watery stools were very numerous and she became lethargic. She was then given continuous vena clysis with approximately 2400 cc. of salt solution in one day. The edema increased rapidly and the plasma proteins fell to 4.34 grams per cent. The vena clysis was stopped. Salyrgan and theocin had no effect upon the edema. An attempt was then made to increase the amount of nourishment and to raise the daily intake of protein to 110 grams. When this was done improvement set in gradually, and though the diarrhea which was found to be due to Bac. dysenteria Shiga persisted for months, the edema gradually subsided, the plasma proteins rose slowly and within six months the patient left the hospital entirely well.

Table 1 shows the relation between the degree of edema and the level of the plasma proteins.

TABLE 1

PLASMA PROTEINS

Date	N. I. F. Edema	Total P. Gm. %	S. Alb. Gm. %	S. Glob. Gm. %
10/10/32	+++	4.60		
10/11/32	++++	4.34	1.95	2.39
11/9/32	+++	4.58	2.34	2.24
1/17/33	++	4.63		
2/5/33	0	5.25		
2/7/33	0	5.38	2.58	2.80
3/23/33	0	5.31		

It is to be noted in this case that the infusion of physiological salt solution was followed by an immediate increase in edema. This result serves as an illustration of the effect of accessory factors upon the production of edema in patients with hypoproteinemia. It has already been pointed out that edema may be increased in starvation by ingestion of excessive amounts of water or by the administration of sodium chloride or sodium bicarbonate, and it seems most probable that the anasarca was exaggerated in this patient by the administration of large amounts of salt solution. The comparatively slow recovery may well be attributable to the difficulty in feeding this patient sufficient quantities of food and to the difficulty in controlling diarrhea. With the continuous loss of water through the stools and on a salt poor diet, the patient became finally free from edema, while at rest in bed, even though the concentration of plasma proteins was slightly below the critical level at which edema is likely to occur.

The history of the next patient, who was profoundly anemic, illustrates some of the most serious effects of malnutrition as well as the fact that edema in such patients is not necessarily connected with the degree of anemia.

The patient was a married white woman of twenty-four (Unit 27215) who came to the Johns Hopkins Hospital on October 2, 1929, from Tennessee, complaining of diarrhea, stomach trouble and sore mouth, which she had had intermittently for three years and nine months. Previously she had been well and active though she had at times been nervous. Her best weight had been 140 pounds. Her present illness started after the birth of her youngest child on Dec. 10, 1926. Fifteen days later her mouth became sore, her tongue fiery red and blistered and her mouth and gums swollen. These symptoms persisted for three months and then were accompanied by anorexia, abdominal pain, nausea, vomiting, excessive diarrhea, weakness and pallor, all of which lasted for six months. At the end of this time there was a complete remission of all symptoms for ten months. Her diet consisted largely of eggs, milk, and toast. In May 1929, about six months before admission, the original symptoms recurred, but, in addition, there were for the first time bleeding from the gums, tingling in the fingers and toes, cramps in the muscles of the legs, and during the latter part of her illness swelling of the hands and feet. She had eaten during these six months practically nothing except tea and toast, and there had been a loss of about forty pounds in weight. On admission to the hospital she was extremely pale and weak. The temperature was 102.5°. There was well-marked anasarca with bleeding from the gums and hemorrhages in the fundi. The tongue was beefy red and showed vesicles. The lungs and heart showed nothing remarkable; the blood pressure was 102/58. The abdomen was distended and the liver readily palpable. The vibratory sense was preserved and the sense of position intact. The red blood cells were 850,000; Hb. 27 per cent; lcts. 1,280, and platelets 30,000. The red blood cells showed pronounced anisocytosis, poikilocytosis and macrocytosis. Except for the presence, occasionally, of traces of albumen, the urine was normal. Wassermann reaction was negative. The gastric analysis showed free HCl after histamin, but none before.

The charts (figs. 2 and 3) show the course of her illness.

It is to be noted particularly that the anasarca is marked, the anemia grave, the evidences of purpura quite marked, the diarrhea persistent for some days and that tetany occurred. The examinations of the blood showed that the non-protein nitrogen was remarkably low (16 mg. per cent), the plasma proteins greatly diminished (3.95 grams per cent), and the calcium and phosphorus reduced (Ca. 6.8 mg. per cent; P. 2.1 mg. per cent). It was obvious that the patient had been deprived not only of proteins and vitamins, but of such minerals as calcium and phosphorus. The deprivation had come from partial starvation and perhaps to some extent also from loss of these materials through the stools. On a high calory diet containing 200 grams protein, to which was added liver extract, cod liver oil and large amounts of calcium and phosphorus, the patient improved rapidly. During one period of a few days the amount of salt in the diet was increased, whereupon the edema became much more marked. When the salt was withdrawn the edema decreased rapidly. Over one period of twelve

days (Dec. 2-Dec. 14) the protein intake was increased to 250 grams and the total calories to 4000. During this period there was an average daily retention of seventeen grams of nitrogen and a gain of weight of three kilos. She finally left the hospital in practically perfect health.

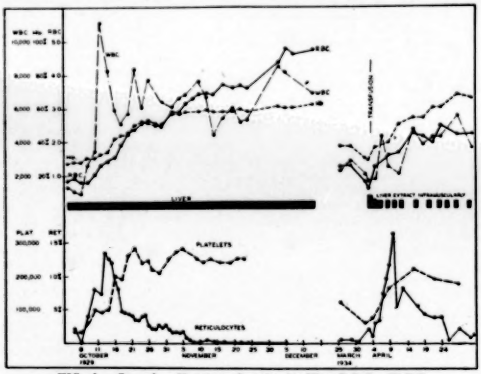

FIG. 2. Case 3. Showing changes in Hb., R.B.C., W.B.C., platelets and reticulocytes during the course of treatment by liver extract on the first and second admissions.

She remained well, eating a generous diet and taking three lbs. of liver weekly, until July, 1932 when liver became distasteful to her and she stopped taking it, though she continued to eat other foods. In December, 1932 there was a

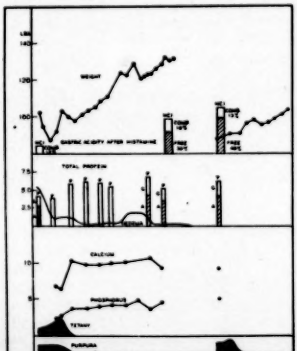

FIG. 3. Case 3. Showing changes in weight, the plasma proteins, the variations in edema, the alterations in calcium and phosphorus of the blood and the course of the illness during the first and second admissions.

relapse of her previous symptoms, and though these were partially controlled by the use of ventriculin she gradually grew worse. After January, 1934 all her symptoms were exaggerated and, though she became rapidly weaker and paler and had dizziness and anorexia, there was no marked edema and only slight swelling of the ankles after exertion.

When she was admitted to the hospital for the second time on April 2, 1934 her condition was much as it had been on the last occasion except for the fact that there was no actual edema, but only a slight puffiness of the eyes. The anemia was great, and on April 3 the Hb. was 29 per cent, the red blood cells 600,000, the leucocytes 1,650 and the platelets 60,000. The plasma albumen was 3.97 grams per cent, the plasma globulin 2.04 grams per cent, the blood calcium and phosphorus were normal (Ca. 9.4 mg. per cent; P. 5.0 mg. per cent). The gastric analysis showed after alcohol free HCl 5, and after histamine free HCl 48. The total plasma proteins were 6.03 grams per cent. On large doses of liver extract intramuscularly (4 cc. No. 343 every other day) and by mouth she improved with great rapidity and by May 21 the Hb. had risen to 80 per cent and the red blood cells to 2,960,000.

It is to be particularly noted that the most serious feature of the illness during the last exacerbation was this profound anemia of macrocytic type. There was also a marked reduction of platelets with purpura. Free hydrochloric acid was present in the gastric juice. There was marked loss of weight, and diarrhea, but no edema and the plasma proteins were normal. There was no conspicuous change in the blood calcium or blood phosphorus. The diet seemed to have been fairly adequate except for the absence of liver, which appeared to be absolutely essential to prevent anemia in this patient in spite of the fact that the gastric secretion contained fairly large amounts of hydro-

chloric acid. The case presents many features of interest and will probably be reported later in detail, but it serves at this time to illustrate the fact that the anemia was dependent upon the lack of liver whereas the edema, which was related to the hypoproteinemia, resulted from protein starvation.

In many forms of anemia and especially in pernicious anemia there may be moderate to severe grades of edema. Peters and Eisenman[14] found that in this group of cases edema was quite regularly accompanied by a reduction of plasma proteins, though in some instances edema was prone to occur when the plasma proteins were at a comparatively high level. They remark upon the readiness with which these patients tend to develop edema. It has occurred to us in studying the appearance of edema in patients with pernicious anemia and idiopathic hypochromic anemia that in many instances accessory factors must be taken into account in these patients. As the anemia progresses, whether this be pernicious anemia, posthemorrhagic anemia, or the idiopathic hypochromic anemia, the patient becomes short of breath, experiences palpitation and presents many of the symptoms of mild congestive heart failure. This disturbance in the circulation might readily exaggerate a tendency to dependent edema in a patient in whom the colloid osmotic pressure of the plasma is so much reduced that it approaches the critical level. Frequently the edema subsides when the patients are placed at rest in bed.

So far we have considered the occurrence and control of edema exclusively in patients who are the victims of different forms of malnutrition and food deficiencies. Whether the patient happens to suffer from pernicious anemia, sprue, persistent diarrhea, different forms of chronic dysentery, or simply inadequate amounts of food, we find that the occurrence of edema is regularly associated with prolonged deprivation or loss of protein from the body and that the presence of edema is usually a reliable sign of protein starvation, and an indication that the patient needs large amounts of protein to repair the loss. The beneficial effects of increasing the protein in the diet and the detrimental effects of administering large amounts of water and sodium chloride are illustrated by the few cases that have been quoted.

It is known that the body is capable of manufacturing its plasma proteins with considerable rapidity, and that in animals, at least, it is difficult, even by starvation for several days to reduce the total amount of plasma protein[23, 24]. Globulin is manufactured more rapidly than plasma albumen. The question has often arisen, however, as to whether hypoproteinemia may result from some interference with the formation of plasma proteins[23]. Myers and Taylor[25] have recently described a case in which they conclude that this unusual defect did exist. The patient, a man of fifty-one, suffered from chronic edema associated with low plasma proteins, which were present in the usual ratio. There was no disease of the heart or kidneys. There was no loss of protein through the bowel. Since the feeding of a large quantity of protein, which was absorbed, did not raise the level of the plasma proteins, it was assumed that the defect lay in the inability of the body to construct plasma proteins in normal amounts.

Unfortunately we are quite ignorant as to the method by which the plasma proteins, with the exception of fibrinogen, are formed in the body. But since there is excellent evidence to show that fibrinogen is manufactured by the liver, the suggestion has often been made, based principally upon the experimental work of Whipple and his co-workers[23], that the synthesis of blood proteins may be in part, at least, a function of this organ. It has been repeatedly observed that the plasma proteins, and particularly the plasma albumen, may be reduced in cirrhosis of the liver[13, 14, 26, 27]. Dr. Bordley, who has been interested in this subject, has furnished me with the data which he has collected in some of our cases of liver disease. It is found that of seven cases of cirrhosis of the liver, all of whom showed ascites and edema of the lower extremities, the total plasma proteins were well below normal in six, and were either at or below 5.5 grams per cent in four. (Table 2.) In four cases in which the amounts of albumen and globulin were recorded, there was a reversal of the normal ratio, and even though the total plasma proteins were normal in amount, the plasma albumen was below normal and the calculated colloid osmotic pressure considerably reduced. The occasional recognition of definite subcutaneous edema in cases of acute yellow atrophy of the liver, many of which followed intravenous injections of arsphenamine, led to an examination of the plasma proteins in some of these patients. Peripheral edema was noted in five out of fifteen of our cases. So far the plasma proteins have been determined in only six patients (table 3), three with and three without edema. In the three patients with edema the total plasma proteins were respectively 4.22 grams per cent, 4.12 grams per cent and 5.57 grams per cent. In the three cases without edema they were 5.94 grams per cent, 6.37 grams per cent and 7.41 grams per cent. In the last instance the plasma albumen was almost normal, 3.92 grams per cent, but in four

TABLE 2

CIRRHOSIS OF LIVER

No.	Edema	Ascites	Total P.	A/G	Alb.	Glob.
1	++	++++	6.12	34/66	2.08	4.04
2	+++	++++	4.72	53/47	2.5	2.2
3	+	++++	5.66	36/64	2.04	3.62
4	+	++++	4.59	44/56	2.02	2.57
5	+++	0	5.5			
6	+	++	5.6			
7	+++	+++	5.0			

other patients in which the plasma albumen was determined it varied from 2.5 grams per cent to 2.1 grams per cent, figures which fall well below the estimated normal.

There seems to be little question, therefore, that the plasma albumen may be considerably reduced in cirrhosis of the liver and in some cases of acute yellow atrophy of the liver. In the mild forms of jaundice, on the other hand, there

TABLE 3

ACUTE YELLOW ATROPHY

No.	Edema	Total P.	A/G	Alb.	Glob.	Fibrinogen
1	+	4.22	53/47	2.23	1.98	
2	++	5.57	38/62	2.11	3.45	Decreased
3	++	4.12				
4	0	5.94	39/61	2.31	3.61	
5	0	7.41	53/47	3.92	3.48	
6	0	6.37	45/55	2.56	3.49	Decreased

seems to be little or no alteration in the plasma proteins[13, 14]. What the significance of the reduction of plasma albumen in cirrhosis of the liver and acute yellow atrophy may be, it is not possible at the present time to state. Patients with cirrhosis of the liver are often poorly nourished.

I have tried to trace for you the study of one common symptom in an interesting group of diseases that arise from improper nutrition. These deficiency states, as we have seen, may appear in the most varied forms, either as well-defined diseases, or as a combination of symptoms. One symptom which is common to many of them is edema, sometimes progressing to a marked anasarca, and it was our intention to enquire into the cause and relief of this symptom.

It can be shown that protein is often grossly deficient in the diets of patients who suffer from these disturbances of nutrition. Diarrhea in addition is not uncommon so that the protein deficiency may be still further increased by the difficulty of absorbing protein through the gastro-intestinal tract or by the constant loss of small quantities of food protein and of blood in the stools. The deprivation of protein eventually leads to a lowering of the plasma proteins, which in turn predisposes to the formation of subcutaneous edema or is actually the cause of it. Accessory factors, such as the ingestion of considerable amounts of sodium chloride and water, the upright position and mild degree of congestive heart failure may precipitate edema or exaggerate it, but the underlying cause rests usually in the protein deficit. This particular form of deficiency may be relieved by feeding adequate or, if necessary, excessive amounts of protein. When this can be accomplished the plasma proteins may return to their normal levels and the edema may rapidly disappear.

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NEW ENGLAND BRANCH, AMERICAN UROLOGICAL ASSOCIATION

THE VITAL IMPORTANCE OF THE RELATION OF HYPERPARATHYROIDISM TO THE FORMATION OF CERTAIN URINARY CALCULI—AND ITS REMEDY*

BY RICHARD CHUTE, M.D.†

I WOULD like to say a few words on a subject which impresses me as being a true fundamental step forward in our knowledge, and which I venture to prophesy in the near future will be considered by urologists as one of the most important advances made in a long time. The reason why I proclaim the importance of this matter with such assurance is that we have apparently found the definite cause for the formation of many calcium and phosphate urinary stones, especially the recurrent and multiple ones, and have also found the remedy. I refer to the rather recently discovered condition of hyperparathyroidism in relation to the very frequent formation of renal calculi in this condition. These remarks make no pretense of being either a complete description of hyperparathyroidism or a discussion of the various other factors such as infection or vitamin A deficiency, thought to be involved in stone formation, but purposely take up only hyperparathyroidism as it is related to the formation of calcium and phosphate stones. I have been fortunate enough to see a number of cases of hyperparathyroidism and to learn something about this comparatively new condition from a distinguished group of colleagues at the Massachusetts General Hospital, where more investigation and work on this condition has been done than in any other clinic in this country. The credit for the remarkable advances made is shared by the internists and the surgeons, with the lion's share going to the former,—Drs. Joseph Aub, Walter Bauer, and Fuller Albright, especially to Dr. Albright who by his very great knowledge, industry and zeal, has been the prime mover in the most recent phases of this work. At the present time there has been accumulated at the Massachusetts General Hospital a series of sixteen cases of hyperparathyroidism that have been operated upon and the abnormal tissue removed and proved histologically, the largest proved series in any one clinic in the world, I believe.

Hyperparathyroidism is a term used to describe a condition due to an excess of the internal secretion of the parathyroid glands. The source of this oversupply is found to be either a benign adenoma or hyperplasia of one or more of the four little parathyroid glands, producing an excess of the internal secretion, known as parathormone. These glands, by means of this internal secretion, exercise a profound influence on the metabolism of calcium and phosphorus in the body, and in these cases of hyperparathyroidism with an excess of secretion, the blood calcium is raised, the blood phosphorus is usually lowered, but not always, and there is a greatly increased amount of both calcium and phosphorus being excreted in the urine, associated with something which is of great interest to us of the urological fraternity, the frequent formation of calcium and phosphate stones. This stone formation is consequent to the tremendous concentration of calcium and phosphorus being excreted in the urine, several times the normal amount, which therefore has an abnormally great tendency to precipitate out as solid calcium phosphate and thus to form calcium phosphate stones, especially in an alkaline urine. In the Massachusetts General series, out of the sixteen cases, twelve (or 75 per cent) had stone formation in the urinary tract. Of course, since this calculus formation is due to a systemic disturbance, these calcium phosphate calculi tend to be recurrent, multiple, and bilateral, showing no particular favoritism for one kidney over the other. This is indicated by the fact that six (or 50 per cent) of these cases had bilateral calculi, and one of these cases had had many recurrent bilateral renal calculi over a period of ten years. Another of these cases who was observed for six years, before the cause of his trouble was found and removed, was watched by x-rays in the act of forming renal calculi while he was under observation. He first entered with normal kidneys, normal urine and normal x-rays, but he gradually developed bilateral renal calculi and also calcification in the kidney cortex leading to severe and permanent kidney drainage. This latter is a very important and serious feature of this condition, because the formation of minute stones, concretions or calcifications in the tubules of the kidney cortex is not at all uncommon in hyperparathyroidism, and of course leads to severe and irreparable damage to the renal parenchyma and to the hopeless end-result of contracted, practically functionless kidneys. Figure 1 shows the x-ray picture of such a case in a man of thirty-three where generalized calcium deposits can be seen in the collecting tubules of both kidneys, each pyramid be-

*From the Massachusetts General Hospital.

Read at the meeting of the New England Branch of the American Urological Association, February 15, 1924.

†Chute, Richard—Assistant in Urology, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 1297.

ing represented by a clump of minute calcium concretions. This case has been previously reported by Albright, Baird, Cope and Bloomberg[1]. Recently Albright showed me in his laboratory definite calcium phosphate casts of the kidney tubules in one of these hyperparathyroid cases whose urine was loaded with calcium phosphate. These casts could be dissolved by acidifying the urine. On account of the abnormally great excretion of calcium and phosphorus, these two elements are drained away from the skeleton which consequently becomes demineralized, and weaker, and casts a less dense

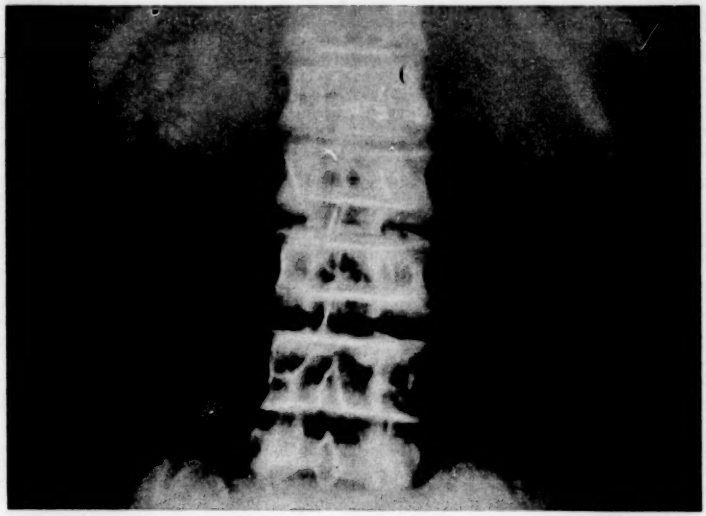

FIG. 1.

FIG. 1. X-ray picture (from Albright, Baird, Cope and Bloomberg[4]) showing generalized calcium deposits or microlithiasis in the collecting tubules of both kidneys of a patient with hyperparathyroidism.

x-ray shadow. As a result of this condition there occur fractures following minimal trauma, cysts in the bone, epulis of the jaw, and other manifestations which cannot be described here. The subjective symptoms of hyperparathyroidism are not always very marked, and are apt to be dependent on the decalcification of the skeleton, often taking the form of generalized aches and pains in the bones and joints, weakness of the legs, and naturally loss of weight. Some cases are always thirsty and drink and urinate a lot, and have even been diagnosed as diabetes insipidus. The diagnosis rests fundamentally on the finding of a high blood serum calcium. The normal value for this is about 10 milligrams per 100 cubic centimeters of blood, and anything over 11½ milligrams is very suggestive. The average in the sixteen cases in the Massachusetts General series was 13.9 milligrams. The only adequate remedy for hyperparathyroidism to date is the surgical removal, either complete or subtotal, of the adenomatous or hyperplastic gland tissue. X-ray treatment has been tried without success. Surgical resection results in checking the hypersecretion back to a normal amount, which in turn brings the calcium and phosphorus in the blood back to normal and decreases the excretion of calcium and phosphorus in the urine down to normal, thus relieving the urinary stream of the burden, which often proves too heavy for it, that of carrying so abnormally large and heavy a load of calcium and phosphorus that some of it is apt to fall off and be dumped somewhere along the line of the urinary passages. The operations for the removal of these parathyroid tumors are often most tedious and trying. In a difficult case the whole posterior aspect of the thyroid gland, the neck and sometimes even the mediastinum must be carefully and bloodlessly dissected and methodically explored for a tumor whose size and location the operator cannot know beforehand. Occasionally the tumor may be the size of a small hen's egg, but more often it is very much smaller, and sometimes it is so small that it can be pos-

itively identified only by a frozen microscopic section on the spot. The size apparently has more or less to do with the amount of metabolic disturbance produced. A great deal of credit is due to Dr. Oliver Cope and especially to Dr. Edward Churchill of the Massachusetts General Hospital for successfully performing these operations which can be very difficult indeed. They have recently written an admirable article describing their technique and results in eleven cases of this series[2].

I would like to report briefly one new and interesting case in a married woman who was forty-two years old when she was first seen by my father in 1924, ten years ago. At that time he performed a left nephrectomy for calculus pyonephrosis, the left kidney having been completely destroyed by one large stone and nine smaller ones throughout its substance.

Although the patient started passing gravel within two months of leaving the hospital, she got along reasonably well for the next few years until 1930 when she again had trouble and a stone as big as a five-cent piece and three times as thick, was removed from her remaining kidney. Analysis of this stone showed it to be made of calcium phosphate. A few months later she passed a small phosphate stone herself, and a year later another one. Last spring she was having trouble again and x-rays showed a small stone shadow in the lower calyx of her kidney. I had my eye out for cases of hyperparathyroidism, and took her to Dr. Albright who made the diagnosis of hyperparathyroidism on the basis of a high blood calcium (12.5 mg.), a low blood phosphorus, and her history of repeated formation of calcium phosphate stones. She was strongly urged to be operated on, but decided to go home to think the matter over. However, the matter was soon taken out of her hands, because her stone moved up to the ureteropelvic junction and blocked off her kidney, and she came flying back into the hospital with anuria, fever, chills, vomiting, etc. After an unsuccessful attempt to drain her solitary kidney with a ureteral catheter, an emergency nephrostomy had to be done to save her life. The stone could not be located at this operation, and not too much time was wasted in looking for it, as the patient was in a critical condition. After a few stormy days, during which she had many clyses, she came along nicely, and went home wearing a nephrostomy tube. She returned after three months and Dr. Churchill removed a parathyroid tumor twice the size of a green pea. At the time of operation all the urine for twenty-four hours beforehand and twenty-four hours afterward was kept and analyzed for the excretion of calcium and phosphorus. The twenty-four hour specimen after the operation showed the expected drop in the direction toward normal of the amount of calcium and phosphorus being excreted in the urine, and also her blood calcium and phosphorus both moved in the direction of normal. Meanwhile the stone had been moving slowly down the ureter, and following several cystoscopic manipulations it was passed a few days after the parathyroid operation. The nephrostomy tube was removed a few weeks afterward, the wound healed up nicely, and the patient has been well ever since, with her calcium and phosphorus values approaching normal. She has made no more stones or gravel, and I am confident that she will never do so, now that her urine is no longer being flooded with calcium and phosphorus.

The first of the cases of hyperparathyroidism with urinary stone was operated upon seventeen months ago, and since then a number of others, and no stones have recurred in any of these cases, all of whom have been followed very carefully, and their calcium and phosphorus values have remained normal.

Fifty per cent of these cases of hyperparathyroidism have had calculus formation or calcification in the urinary tract visible by x-rays. This percentage is undoubtedly too large to be true in general, but is due to the fact that patients come in to the hospital for calculus trouble and then are found to be suffering from hyperparathyroidism. There are undoubtedly a great many undiagnosed cases of hyperparathyroidism walking around who are considered to have rheumatism or some orthopedic condition. Stones, especially bilateral or recurring ones, should always at least bring up the question of an underlying hyperparathyroidism. It is now routine at the Massachusetts General Hospital for all stone cases to have estimations of their blood calcium and phosphorus, and in this way a number of cases of hyperparathyroidism have been detected and remedied, thus preventing recurrence of their stones or future dangerous calcifications in their kidney tubules. To guard against this latter life-shortening occurrence which can do the kidneys irreparable damage, it is most important to discover and cure all cases of hyperparathyroidism before this condition sets in.

This new and stimulating work concerns the formation of calcium and phosphate stones only, but it opens up an endocrinological and systemic point of view and method of attack which may give help in the further study of the causes of formation of urinary calculi of other compositions.

In conclusion, I would make an earnest plea to every urologist to consider the possibility of an underlying hyperparathyroidism in every case of urinary lithiasis, and I feel strongly that it is our duty to these patients whose well-being has been entrusted to us to give them the benefit of this newer knowledge by a careful estimation of their fasting blood calcium. Probably most of these calcium estimations will be normal, but they should not be counted as labor lost but as a duty well performed, because eventually in this way, as has happened at the Massachusetts General Hospital, many patients suffering from hyperparathyroidism will be able to be diagnosed and cured, patients who otherwise might have gone on to the formation of more stones or of calcifications in the kidney tubules, resulting in irreparable damage to the kidneys and premature death.

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PYELO-URETERITIS CYSTICA*

BY WALTER D. BIEBERBACH, M.D.†

I WISH to report the following case of pyelo-ureteritis cystica.

The patient was a forty-two year old married housewife, born in Poland. She had two admissions to the hospital, the first in November, 1931, at which time she complained of pain in the left kidney region. Three days later she had an attack of hematuria. The severe pain subsided with the appearance of blood in the urine and became duller in character accompanied by headache. Gradually the pain and bleeding subsided and the patient was free from symptoms for two or three months. Lately they have recurred more frequently and the severity of the attacks and hemorrhage have increased. Her physical examination was negative except for slight tenderness on deep palpation at the left costovertebral angle; no mass could be felt.

Following are the cystoscopy and x-ray report at the time of the first admission: "Kidneys outlined, normal in size and position. Catheters reach level of third transverse process. No calculi were seen. Bilateral ureteropyelograms show very small calices on the right with no filling defects. The ureter is dilated to a maximum width of 1 cm. above the sacro-iliac level. The lower portion is not well shown. On the left side the pelvis and calices were within normal limits. The ureter shows an apparent right angle kink with a hiatus amounting to nearly 1 cm. just above the third transverse process. There is very little dilatation. The ureter below the sacro-iliac level is not well shown. This examination suggests partial obstruction of the ureters on both sides, that on the right near the sacro-iliac level and on the left in the region of the kink. The cause is not apparent and non-opaque calculus must be considered. The general cystoscopic findings in the bladder were relatively negative except for some congestion of the bladder mucosa. No apparent obstruction was felt to No. 7 x-ray catheters, as they were passed to the pelves of the kidneys. Bladder specimen of urine showed a slight trace of albumin, no sugar, rare r.b.c., frequent w.b.c., squamous epithelial cells and bacteria. A culture showed non-pathogenic Gram negative bacilli. The right kidney sediment contained rare r.b.c. with occasional w.b.c. Culture showed non-pathogenic Gram negative bacilli. A dye injected intravenously appeared on both sides in twenty minutes. Blood chemistry gave sugar 120 mgs. per 100 cc., non protein nitrogen 30.0 mgs. per 100 cc.

The patient was discharged with a diagnosis of partial obstruction of left ureter due to kink, with a question of calculus.

On January 31, 1933, the patient was readmitted to the Urological Service for study. Her symptoms were essentially as on her first admission but increased in severity. She stated that following her last cystoscopy she was free from symptoms for two months.

She was cystoscoped with the following findings: "No residual urine. Bladder capacity 300 cc." Plain and injected pictures were made, 12.5 per cent sodium iodide being used for the injection. The x-ray report was as follows: Examination practically identical with that made in November, 1931, both ureters being dilated above the sacro-iliac level. The left ureter showed numerous small vacuoles that probably represent bubbles. No calculi are shown in the tract. Because of the alleged bubbles intravenous pyelograms were made and these also showed two vacuoles at the level of the third lumbar transverse process. Diagnosis: Papillomatous or similar growth.

On February fourteenth it was decided that an exploratory operation was indicated under ether anesthesia. The kidney and ureter were removed. The specimen showed numerous mucosal cysts, 2 to 3 mm. in diameter, in the kidney pelvis and ureter. Pathological diagnosis: Pyelo-ureteritis cystica.

In January 1934, one year after operation, the patient was checked up by cystoscopy and the report is as follows:

Urethra and external genitals normal. Bladder contains no residual urine. Capacity 300 cc. Studded throughout the bladder mucosa were many groups of small cysts, each group containing from four to five small transparent cysts about the size and shape of a split tapioca. Around the base of each cyst was a small, bright red inflammatory ring which contacted with the bladder mucosa. In between the cysts was normal clear bladder mucosa. This type of cyst involved the entire bladder except the trigone. The trigone was thickened with bulbous edema. The upper and lateral surfaces of the internal sphincter were somewhat irregular and hanging from the left upper lateral margin was a small pear-shaped cyst which was transparent. The right ureteral orifice is in normal position, imbedded in thickened mucosa. It was easily catheterized with a No. 7 x-ray catheter and drained clear yellow urine freely.

The pelvis was injected with 10 cc. 12½ per cent sodii iodidi and ureteropyelograms were taken. The ureter was slightly dilated, also the renal pelvis. However, these were not enlarged over the last x-ray pictures. No vacuoles or air pockets were observed in the ureter. The ten-minute emptying time showed no residual. Intravenous indigo-carmine appeared in good concentration in two and a half minutes. A collected specimen of urine from the bladder showed a slight trace of albumin, no sugar. Reaction acid. Sediment showed a few white blood cells and rare red blood cells. Culture, no growth.

Specimen from the kidney showed slight trace of albumin, no sugar, acid in reaction. Sediment showed many white blood cells and rare red blood cells. Culture, no growth. Guinea pig inoculated for T.B. was negative. Blood chemistry, non protein nitrogen 27.3 mgs. Blood smears all within normal limits.

There was no precedent in the literature advising operation in a case such as this. The patient's symptoms persisted unabated after the first cystoscopy. It seemed, therefore, that operative treatment was the only method of procedure. At the time of operation the exact diagnosis was not known, but in the presence of multiple tumors in the ureter it seemed advisable to remove the ureter and kidney. We recognize the possibility of the occurrence of the same condition on the other side. The patient to date, one year after her operation, is free from symptoms, and no increased pathology has invaded her remaining right kidney or ureter.

The above is an abstract from an article which will appear in *The American Journal of Roentgenology* in the near future, with illustrations.

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†Bieberbach, Walter D.—Urologist, Worcester City Hospital. For record and address of author see "This Week's Issue," page 1297.

DENERVATION AND DISPLACEMENT OF THE URETER FOR EXAGGERATED RENAL COLIC*

With A Report of a New Case

BY THOMAS N. HEPBURN, M.D.†

AN intractable renal colic is occasionally encountered especially in the female, which cannot be explained on any other hypothesis than a spasm of the circular muscles of the ureter, pelves or calyces, but chiefly of the ureter.

Little has been known of the nerve supply of the kidney and ureter. In blind despair, various clinicians have tried relieving these patients by denervation operations. Professor Papin of France reported his operation for nephralgia by severing the sensory nerves running on the surface of the renal artery to the kidney.

Wharton reported two cases in 1930, in which, through a suprapubic abdominal incision, he denervated the ureter beginning 6 cm. from the bladder and going to opposite the fourth lumbar vertebra. He dropped the ureter back into its bed.

That same year I reported my operation with two cases in which I denervated the whole ureter through a retroperitoneal approach, and displaced the ureter laterally, at least two inches from its old bed, in an effort to retard the possible regeneration of this nervous mechanism. No one of these clinicians was aware of the others' work.

Since the report of these cases, Wharton by an elaborate research dissection with the coöperation and assistance of Streeter found:

1. That the ureter received a nerve supply which is different from the innervation of the kidney and bladder.
2. That nerves go directly to the ureter from:
   (a) The lowest renal ganglion at the upper end of the spermatic plexus.
   (b) The abdominal sympathetics, aortic, hypogastric and pelvic plexuses.
3. That there is a connection between the ureteral innervation and plexuses that supply the ovary and testis.

Andler had previously in 1925 experimented on animals showing that denervation of the ureter did not disturb its functional peristalsis and that no atony, hydro-ureter or stricture resulted.

Fromolt in 1928 by animal experimentation showed that the ureter could be liberated from the kidney pelvis to the bladder without impairing its nutrition because its blood supply came from the renal, vesical and uterine arteries which had a sufficiently rich anastomosis within the ureteral walls to keep it satisfactorily nourished.

Lee in 1930 experimenting with cats showed that the cervical sympathetic nerves could regenerate in thirty-five days after gaps of one inch had been resected.

None of this animal experimental work had been reported when the first denervations of the human ureter were done.

Papin's operation of cutting the sensory fibers to the kidney is based on the presumption that there is no remediable cause for the pain, and the best we can hope to do is to relieve our patients from its sensory effects. Wharton's and my operation are based on the theory that the nephralgia is due to spastic obstruction of the ureter, and that if we can relieve the kidney of the back pressure resulting from this spastic obstruction, there will be no pain. Our operations have one great advantage over Papin's, in that the pathological process, so far as the kidney is concerned, is relieved.

Papin's operation does not stop the spasm, but only the renal pain resulting from the spasm. Ureteral denervation stops spasm, but renal pain will still result from any other type of ureteral obstruction.

If one should apply the conclusions from working on the sympathetic cervical nerves of the cat to the human beings, that they can regenerate in thirty-five days and bridge defects in continuity of an inch, the regeneration of the nerves of the denervated ureter should be completed in a few months' time, and the spastic disability re-established. There has been no recurrence of pain in Wharton's cases. So possibly this regeneration is not effected in human beings, again proving that animal experimental findings should not be blindly applied to them.

Without having any experimental work upon which to base this conclusion, I added the displacement factor to my denervation operation. One case has gone eight years and another one year without any return of spasm. The displacement factor has a mechanical advantage in that it takes up any redundancy which may have developed as a result of the obstructive and inflammatory processes, thereby improving the drainage of the kidney pelvis and facilitating recovery from pyelitis.

I freely admit I am not at the root of the

*Read at the meeting of the New England Branch of the American Urological Association, February 15, 1934.

†Hepburn, Thomas N.—Urologist, Hartford Hospital. For record and address of author see "This Week's Issue," page 1297.

pathological picture when I am denervating the ureter. The cause of the spasm should be sought and if possible cured without operation. I am theorizing knowingly when I picture this cause as an emotional storm which lets loose a flood of nerve impulses too great to be carried by the ordinary conduits to the region from which the storm gathered, but must overflow to adjacent territory and involve neighboring structures. The sympathetic connection Wharton found between the ovary and testis and the ureter seems to me suggestive of a basis in some sexual emotional defeat. Its dominant finding in women I explain by the greater occurrence of sexual emotional defeat in women than in men. Dr. Hunner's experience when he thought he was finding so many strictures in women, supports this theory.

There is no reason why emotional overflows may not have other than a sexual basis and result in ureteral spasm. I have seen many of them but to a lesser degree of severity. Ureteral colic due to spasm is not uncommon after an exciting meeting at a board of directors, or following an emotional platform oration. These spasms pass off more easily.

In order to add to the clinical material on this subject, I present the following case:

Miss Ruth S. first consulted me eighteen years ago when she was nineteen years of age because of pain in her right kidney region. Her appendix had been removed at seventeen. Cystoscopy at that time revealed no demonstrable pathology, and I made a diagnosis of sexual neurosis with ureteral spasm.

Painful attacks continued over a period of years. This patient was studied in various clinics, and besides developing a severe urinary infection no demonstrable pathology could be demonstrated. Her menses were always normal and the vaginal examination was negative. Her disabilities from these right renal attacks were so terrific that finally her family physician and surgeon did a right nephrectomy in February, 1932, that is sixteen years after the onset of her symptoms.

This relieved the patient for a few months only. The attacks then began occurring in the left kidney. The patient still had a bad chronic cystitis and had developed a left pyelitis with four plus pus cells from the kidney pelvis.

Her attacks were as often as once in ten days and were so severe that three or four grains of morphine would not control them. Avertin given rectally over a period of three and four days would not break the attack. Once a doctor had an anesthetist stay with her for twenty-four hours trying to keep her under ether anesthesia, but as soon as she would get out of the anesthetic, the pain would recur.

I saw her in 1933 for the second time in seventeen years. When she came to my care at the Hartford Hospital she was running a temperature from 101-106°. Her bladder was violently inflamed. Catheterized urine from her left kidney showed four plus pus cells. The functional capacity to excrete indigo-carmin was good. The ureteropyelogram is shown here. (See fig. 1.) There is certainly nothing in this picture to explain the terrific renal colics to which this woman was subject. A diagnosis of spastic ureteral obstruction was made and a denervation operation decided upon.

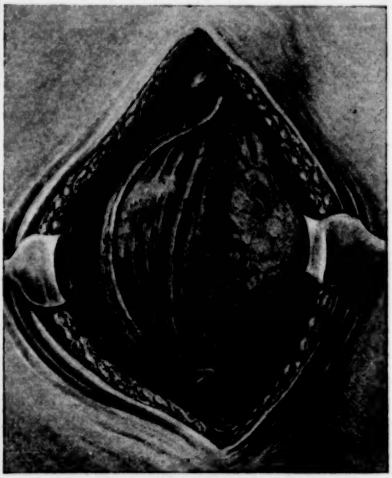

FIG. 1. Drawing of displaced ureter after it had been removed from its original bed through a retroperitoneal approach.

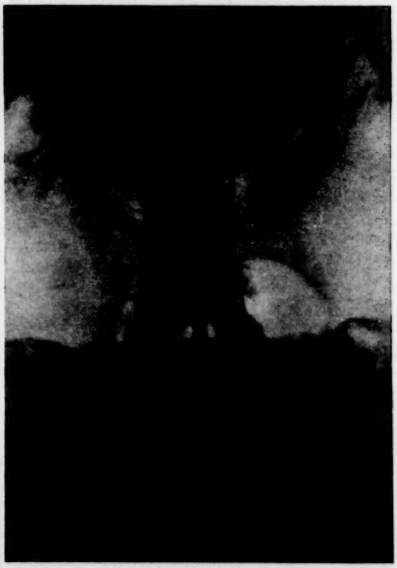

FIG. 2. Before displacement and denervation of ureter.

Operation—April 21, 1933. A left lumbar incision was made over the left kidney which was decapsulated and slung up in high position. From this incision the ureter was denervated down as far as a hand could safely reach.

A left McBurney incision was then made and the ureter exposed and denervated from the pelvic brim down to within 9 cm. of the bladder and sutured well out on the lateral wall.

FIG. 3. Nine months after denervation and displacement of the ureter.

The lower end of the ureter was denervated through a midline suprapubic incision and retroperitoneal approach.

It is now nine months since her operation. She has had no renal colic. Cystoscopy now shows no pus from the catheterized urine and the bladder has cleared up.

Unfortunately, this patient got a periureteral infection which made her convalescence very annoying, several residual abscesses having to be drained. At one time the external pressure on the ureter of one of these abscesses caused enough obstruction so that this woman had distinct renal pain. This pain was relieved on drainage of the abscess. The conclusion to draw from this observation is that the denervation of the ureter relieves renal colic only by making ureteral spasm impossible and that any other pathology causing ureteral obstruction may produce renal colic.

CONCLUSIONS

1. Intractable renal colic in cases where no obstructive cause can be found may be due to spastic obstruction of the ureter. Denervation and lateral displacement of the ureter is a logical surgical procedure in such a condition. Another clinical case is presented to support this contention.

2. The claim is made that denervation is more completely done from the retroperitoneal approach, and that the added factor of lateral displacement makes less probable the regeneration of the spastic nervous mechanism and relieves any redundancy which may have developed in the ureter, thereby improving drainage of the renal pelvis and relief from pyelitis.

3. While it is recognized that spastic ureteral obstruction is doubtlessly a very common cause of renal colic in both sexes, the extreme spasms that require denervation are quite rare, and in all reported cases they have been found in women. Wharton's anatomical dissections revealing a connection between the sympathetic nerve supply of the ovary, testis and the ureter would seem to give a sound neurological mechanism to substantiate the hypothesis of a probable sexual foundation for these severe spasms. That they occur more frequently in women than men is because sexual emotional defeat occurs more often in women than in men.

RENAL SYMPATHECTOMY*

Report of Two Cases, Including One Fatality

BY ERIC STONE, M.D.†

I HAVE the temerity to report such a small series of cases because of the disastrous outcome of the second case. This has the dubious distinction of being the only recorded fatality for this operation as there was no mortality in the group of thirty-four cases I was able to find in a review of the literature.

CASE I. E. P., female, aged 31 years. Record No. 2806. In June, 1932, the patient passed a catheter into her uterine cavity to produce an abortion. In July she had a bilateral salpingo-oöphorectomy and supravaginal hysterectomy performed. In September, 1932, she began to have a series of attacks, occurring about once in ten days, marked by acute left renal and ureteral pain sufficient to incapacitate her to the extent that she had to give up all employment. The attacks were all identical, simulating

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†Stone, Eric—Surgeon-in-Charge, Urological Service, Charles V. Chapin Hospital, Providence. For record and address of author see "This Week's Issue," page 1297.

acute hydronephrosis, except that at no time was the urine collected from the pelvis found to be under pressure. The attacks were so violent that various local physicians called in during attacks sent her to the hospital fourteen times in eleven months. Complete urological examinations were made on four of these admissions and no demonstrable urinary tract pathology could be discovered. The pyelograms shown in Plate I were made, during an attack, on her sixth admission, and appear perfectly normal as do all other plates.

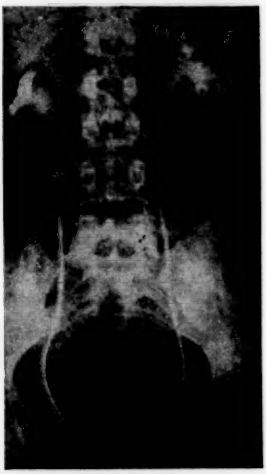


PLATE I. Case I. Pyelogram showing normal calyces, pelvis and ureter on the left, the affected side: symptomless hydronephrosis on the right.

A knowledge of a bad psychoneurotic background and the emotional stimulus bringing on most of her attacks, lead to an investigation of her vegetative nervous system. More careful history-taking revealed frequent attacks of urticaria, dyspnea, palpitation, recurrent intestinal colic and marked car sickness. An adrenalin test carried out on her last admission gave a marked sympathicotonic reaction. (Chart I.)

A composite of various physical examinations gives several significant findings; chiefly of a negative nature. During the attacks there was usually a tenderness over the left kidney region, both anteriorly and posteriorly; but no muscle rigidity or ability to palpate the organ. The palpebral fissure was widened and the pupils dilated. Tachycardia was a constant finding. The gag reflex was increased and transitory areas of neurogenic hyperemia were usually present. The thyroid was not palpable, nor could any abnormal impulse or bruit be made out in this region.

On August 8, 1933, under spinal anesthesia, the left kidney was exposed through an upper left rectus incision, the entire procedure being carried out extraperitoneally. The ureter was stripped of all its investments for a distance of 5 cm. The pedicle was freed and the vein and artery, which bifurcated at the hilum only, were easily stripped of all their coverings for a distance of 3 cm. The kidney was replaced in its bed and the wound closed around a cigarette drain. The postoperative recovery was easy, being unaccompanied by any fever, nausea, or distention, and marked by less than the usual pain.

The patient was discharged on the sixteenth postoperative day. Two weeks later she resumed her work as a waitress and when last seen, January 1934, had suffered no recurrence of the pain.

CASE II. M. I. O., female, aged 41 years. Record No. 2969. In May, 1931, the patient fell down a flight of stairs, suffering a mild concussion and multiple bruises. She was well until July 10, when she fell while standing on the floor, apparently having fainted. The next day she had a sudden attack of pain in the right kidney region lasting fifteen minutes and sufficiently severe to cause her to roll on the floor in agony. A second attack occurred two days later, and during the next three weeks, there was at least one attack a day, sometimes as many as four. Between the attacks she felt perfectly well. Once or twice, after an attack, a few small red specks were noted in the urine and at various times, occult blood was found; but except for this and some frequency of micturition for a few hours after each attack, there were no urinary symptoms.

She was admitted to the hospital August 14, 1933. The next day a complete urological examination was done. A Fr. No. 18 stricture of the urethra was found and was readily dilated to Fr. No. 26. Both ureteric orifices were of golf-hole type and were fibrotic. The urines from both kidneys were sterile, and the function of the kidneys normal. As was demonstrated by both retrograde, and later by intravenous urography, the kidneys and ureters were normal, except possibly for a moderate hyperactivity of the right pelvis. (Plates II and III.)

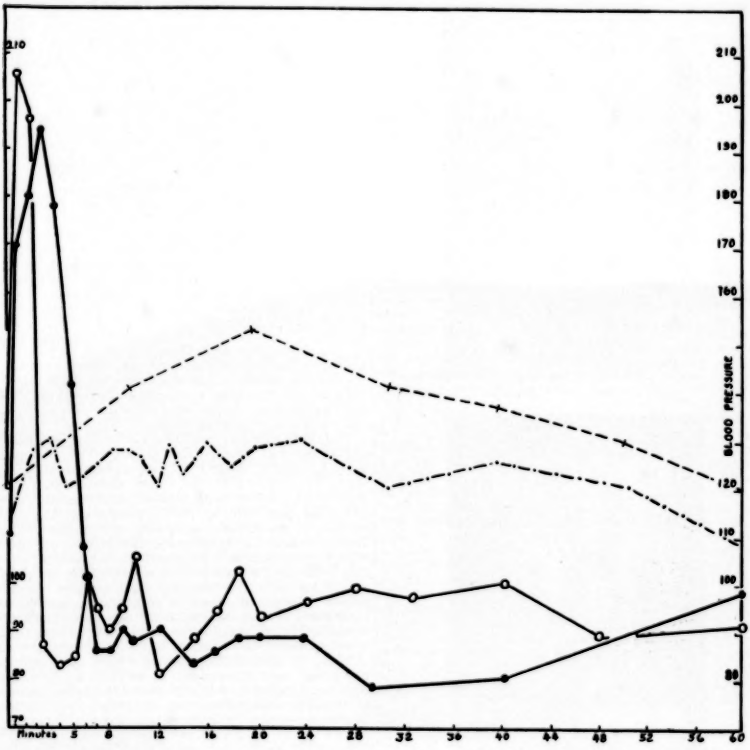
In view of these negative findings and with the preceding case in mind, her past history was reviewed for sympathicotonic symptoms. It was found that she had suffered from various gastro-intestinal disturbances for many years, with various diagnoses ranging from ulcer to chronic appendicitis. Indeed, in June, 1932, her appendix had been removed and two weeks later a cholecystectomy was done. Pathologically, the appendix was normal, as was the gallbladder. These procedures gave her only slight relief. In youth, she had had recurrent long periods of bilateral neurogenic eczema, extremely resistant to local treatment, but at times, disappearing spontaneously. Allergic vomiting had been present in childhood and infancy. Car sickness had always been marked. An adrenalin test gave a markedly sympathicotonic curve. (Chart I.)

Physical examination was essentially negative except subjective tenderness anteriorly over the lower pole of the right kidney and upper third of the ureter. There was no costovertebral tenderness at any time, nor was the kidney palpable. The thyroid could not be made out. From August 17 to November 9, she was treated orally with calcium gluconate and parathyroid tablets and received at four-day intervals intramuscular injections of acecolin. Once in ten days the right ureter was dilated; after four such instrumentations it was easy to pass a No. 12 bulb catheter into the pelvis.

During the month of October the attacks dropped from three or four in a day to an average of one in four days and those that occurred were much less severe. But during the latter part of the month she developed hyperesthesias and paresthesias particularly of the neck and arm and she was troubled with nausea and occasional vomiting. It was deemed wise to discontinue medication, on which the attacks recurred in their original frequency and vigor. The day of her readmission she had three attacks, two occurring during the night, in the hospital.

On December 2, at 8 A.M., a right renal sympathectomy was done under spinal anesthesia. A right lumbar oblique incision was made, exposing an apparently normal kidney and ureter. The ureter for 4 cm. and the pedicle were divested of all their fluid intake, resulting in a normal urine output, freely voided, made artificial administration of fluids unnecessary. During the first 48 hours the abdomen was soft and flat, flatus being expelled readily. During this period the pulse remained steadily between

CHART I



BLOOD PRESSURE READINGS AFTER INTRAVENOUS INJECTION OF 1 C.C. OF 1-1,000 ADRENALIN

Case I Case II Normal Vagotonic

investments; a decapsulation was carried out and the organ was suspended according to Deming's technique. The wound was closed in layers around a cigarette drain. The patient was returned to her bed in excellent condition. Except for a one-minute spell of retching a few minutes after administration, the anesthesia had been uneventful. The operation took fifty-five minutes to complete.

During her postoperative life there was at no time any nausea or vomiting. An excellent oral

100 and 110, respiration and temperature were normal, although the temperature reached a peak of 101° the first day. It continued normal after the second day. There was so little discomfort that she received only one injection of morphine postoperatively, that given on the day of the operation. Her condition was considered so fine that at the end of twenty-four hours she was removed from the recovery room.

When seen by the house officer at nine in the

morning of the second postoperative day her condition was as stated above. He was called in by a nurse fifteen minutes later. The patient was in a state of shock, simulating acute hemorrhage. She was pallid, cold and clammy. The pulse was weak and thready and its rate had increased to 130; the blood pressure was 90 systolic. Respirations were rapid and shallow, aided by the accessory muscles.

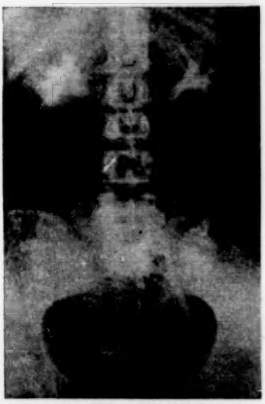


PLATE II. Case II. Intravenous urography (15 minutes).

PLATE III. Case II. Intravenous urograph (one hour) suggesting spasmodic constriction of the ureto-pelvic junction.

Perhaps the most marked feature was an immense distention of the abdomen, which fifteen minutes before had been soft and scaphoid; and peristaltic sounds had disappeared. Stupes, enemas, peristaltin and pituitrin had no effect on the distention. Caffein and adrenalin produced no rise in blood pressure or improvement in the cardiac condition. Examination of the heart showed no enlargement and only those murmurs which were present preoperatively. There was transitory improvement following intravenous administration of glucose. About 4 P.M. her temperature dropped to 96°; later there was a slight terminal rise. She had no pain whatsoever and the great abdominal distention apparently caused no distress. When seen at 6:15 p. m. she was conscious, rational and unapprehensive, although she was obviously in extremis, and complained only of feeling weak. She died at 6:30 P.M.

It is to be noted, for what it may be worth, that during her fifty-eight hours of postoperative life, she had no recurrence of the right kidney pain.

An autopsy was performed three hours postmortem. No sign of hemorrhage, either in the operative field or intra-abdominally was found. The heart showed no thrombi, emboli or coronary occlusion; a mild chronic rheumatic endocarditis involving the mitral and aortic valves was present. The large bowel showed a patent constriction at the hepatic flexure, above and below which the gut was markedly dilated. The operative field showed a slight fibrinous exudate on the denuded kidney surface, although an encapsulated mass 10 cm. in diameter was found superior and slightly anterior to the upper pole. This was purplish in color; on opening the sac a hemorrhagic exudate escaped in which there were some clots. The mass was found to surround the adrenal gland. Both kidneys appeared grossly and microscopically normal. Microscopic preparations of the right adrenal showed no abnormality, other than an inflammatory reaction at its surface. The brain, and in particular, the region of the diencephalon appeared normal to inspection and on histological examination, except for some areas of vacuolization in the cerebrum. The ventricular and spinal fluids were normal. Sections of the cord showed only some accumulation of small round cells about the central canal.

The hemorrhagic reaction about the adrenal did not sufficiently disturb that gland to be interpreted as the cause of death. The collapse seemed too delayed to attribute to the spinal anesthesia, particularly as the intervening period had been free of any symptom referable to that procedure. The whole picture of the disaster was that of a sudden sympathetic paralysis, apparently involving its central control mechanism. The marked intestinal distention bespoke a sympathetic paralysis. The heart rate, which was never particularly high even at the crisis of the collapse, dropped to 70 as death approached, suggesting that the sympathetic accelerator influence was eliminated and the vagi were in control. This was borne out by the drop in blood pressure.

What the rôle of the reaction about the right adrenal gland may have been is difficult to determine. It is certainly theoretically possible that if it failed to produce adrenalin, such reduction may have so decreased sympathetic tone that the system went to pieces. This might account for the delay in the reaction. It is further suggested by the fact that whereas preoperatively, the intravenous injection of adrenalin had produced a terrific response, after the supposed collapse of the sympathetic nervous system, similar injections failed to produce any appreciable effect, i.e., the response was that of a vagotonic, the sympathetic balance having been entirely eliminated. For these reasons it was considered that the patient died of sympathetic system paralysis.

DISCUSSION

J. D. BARNEY, M.D.: I am very much interested in Dr. Hepburn's paper and in Dr. Stone's paper. It was not quite clear to me, however, how they were so thoroughly convinced that there was no other lesion in some other part of the body which

might be responsible for the symptoms, that they performed a ureteral sympathectomy or a renal sympathectomy. In other words, they acknowledge, I think, that they interpreted their urological studies as showing nothing very definitely wrong with the kidney and yet they went ahead and did a renal or ureteral sympathectomy. How can one be sure? I am asking for information because I may have a similar case. How can one be sure that when he does a sympathectomy on the kidney or the ureter that it is really the cause of all the trouble, that it may not be some other lesion or something in addition to that. In other words, what is the thing that crystallizes your judgment in doing such an operation?

C. L. DEMING, M.D.: I am very much interested in renal sympathectomy. During the past year I have done two cases. Both of them were nurses about the age of 30. They both had been watched for some time and had been cystoscoped several times. Both had been thoroughly studied and we endeavored to formulate some idea as to what combination of symptoms and cystoscopic findings would indicate the procedure for a renal sympathectomy. We have two other cases on whom I think a sympathectomy is indicated. From the study of these four cases, two of whom have been operated on with complete relief of symptoms, one for nearly a year, the other two and a half months (the latter is too short a period for a report of complete success) we endeavored to glean four or five factors which might lead us to the ideal sympathectomy case. The factors are these:

1. A long history of periodic attacks of pain which may be localized in the ureteral region referred toward the bladder. These attacks of pain are very difficult to relieve even after heavy doses of morphine. Ureteral catheterization did not seem to give relief but for a short period of time.

2. These cases all show a very painful ureteral catheterization. All of them will complain of severe pain as you pass a catheter up the ureter.

3. As one passes the catheter, no matter whether it is No. 4, 5 or 6, the ureter always rolls with the catheter. It seems to be in a spastic condition. Even after these ureters have been dilated with large bougies and then a small No. 4 catheter is passed, the ureter hugs it tightly and rolls with the catheter.

4. All of our cases showed normal urograms without any evidence of obstruction but there was a delayed emptying time, a factor which I have not seen emphasized. Ten, twelve or fifteen minute emptying time films show a residue in the pelvis. We do not know what this means for we rarely see retained material within the pelvis and ureter unless there is an obstruction or ptosis.

E. L. PEIRSON, M.D.: I have been much interested in the treatment of nephralgia or kidney pain for which there is no obvious cause. In the last two and a half years I have done three operations for this condition with some satisfaction. The great majority of these cases are missed because we have no definite point on which to make the diagnosis. All the cases reported here to-night and the ones which I have seen have been previously seen by a number of physicians without anyone being able to find out what was the matter with them.

There is one point in the diagnosis which has not been brought up and which was quite definite in two of my cases. They had severe incapacitating pain apparently in the kidney which could not be relieved by morphine but which we were always able to relieve with physostigmine. Apparently the physostigmine restored normal peristalsis in the ureter, facilitated emptying of the kidney pelvis and gave relief when morphine did not. I believe this is quite an important point in making a diagnosis.

It seems to me that the greatest difficulty is in actually carrying out the operation satisfactorily. You get in there and instead of finding one artery you find several and it is extremely difficult to strip off the nerves completely. In none of my cases has the denervation been complete. However, one case which I did two and a half years ago is still entirely well. She had been an invalid for over a year with severe renal colic but has now been working regularly for two years. She had some recurrence of pain at the end of nine months which disappeared spontaneously. The second patient had complete relief of pain for five and a half months but since then has had some pain, about fifty per cent as severe as previously. The last case has been done only recently but has been relieved of all pain.

My thought is that we should have this condition more in mind as a possible diagnosis and not let these patients go on and on if there is a chance of relieving them by such a simple procedure. It would seem to me better to occasionally perform an unwarranted operation than to refuse such patients the possibility of relief merely because we lack adequate means of confirming the diagnosis.

I wonder in Dr. Hepburn's case if he did not do more or less of a renal sympathectomy when he freed up his kidney and ureter and stripped the capsule off the kidney. It seems that this might have played some part in the relief of pain in this case as it has been my impression that very inadequate sympathectomies may be sufficient to break the vicious circle which causes the pain.

E. L. HUNT, M.D.: About the cause of death in Dr. Stone's case, it is said that the adrenal can stand a good deal of abuse without causing death. I removed a kidney for chronic suppuration with stones in a young woman and had some difficulties in freeing it and when I brought it out there was a good-sized tongue of the adrenal with it but she had absolutely a comfortable postoperative course and is well today. That is not quite analogous but it must have disturbed innervation and secretions and other functions which it had in it.

THOMAS N. HEPBURN, M.D.: I quite agree with Dr. Barney that very possibly there may be (and I so stated) some other pathology underlying the situation which initiates these spasms. Those of you who have studied in detail the cases reported know that most of these people have had various abdominal explorations. Dr. Wharton has raised the question as to whether they may not be secondary to some pelvic pathology in women, and he discussed that possibility in one of his reports. My own statement is that whatever the primary pathology may be by severing the sympathetic nerve connection to the ureter it could not cause spasm of the ureter.

In regard to Dr. Deming's criteria for denervation, I think these cases are very sensitive to cystoscopy. As a routine I anesthetize all my cystoscopic patients so that I am not able to corroborate his first sign of extreme tenderness. I think we find a great many patients who do not need sympathectomy whose ureter will grasp the catheter as you roll it. This observation alone certainly does not warrant denervation. I think his emptying time is very suggestive and more valuable. The real decision must be based on the frequency, severity and crippling character of the attacks.

As to Dr. Peirson's suggestion that my operation denervates the kidney, I confess that I capsulated

the kidney with that in mind, hoping that I would get a "gun-shot" surgical effect, but I certainly did not strip the nerves from the renal artery wall of the renal pedicle, as advocated by Papin. My conviction is that the nephralgia is due to ureteral obstruction. Remember that my kidney became painful when the ureter was obstructed by an extra-ureteral pressure after my denervation operation, thereby proving that the sensory nerves to the kidney were still functioning.

ERIC STONE, M.D.: I would like to make one comment on the question of diagnosis. I was surprised in a review of the urological literature to find how little attention had been paid to the very easily obtained medical points that appear in a sympathetic-cotonic individual. Both the cases I reported were demonstrated to be not only sympatheticotonic as regards that kidney but the entire individual make-up was sympatheticotonic.

SPONTANEOUS INTRAPERITONEAL RUPTURE OF THE URINARY BLADDER*

Report of A Case

BY ARTHUR T. JONES, M.D.†

RUPTURE of the urinary bladder may be divided into two types, intraperitoneal and extraperitoneal. In reviewing the literature we find many cases of rupture of the bladder reported. These cases are due to various causes, such as trauma, especially in these days of frequent automobile accidents, also from instrumentation, from the presence of definite pathology in which the bladder wall is involved, or in which there is erosion into the bladder from inflammation and continuity of tissue, as in diverticulitis, tuberculosis, etc.

The reported cases, however, of spontaneous rupture of the bladder with no pathology, the condition being simply one of an overdistended bladder, are rather rare in the literature. In earlier days most of these cases were in *men* who had been drinking heavily and were unaware that they had an overdistended bladder but found they were unable to void, or they were brought into the hospital in a decided state of intoxication with symptoms of extravasation of urine. Cabot in his writings speaks of most of the cases being of this type. I think that we hardly realized in those days the actual condition which existed, namely, that it was a definite extraperitoneal rupture of the bladder with extravasation of urine into the surrounding tissues. We were inclined to look upon the extravasation as the real entity; treated that, as of course we should, obtained entrance to the bladder by sound and catheter and in due course of time most of these patients recovered.

Intraperitoneal rupture presents an entirely different picture, however, and the case that I wish to report presents definite symptoms and calls for a definite line of treatment quite different from the case of extraperitoneal rupture. Dr. B. H. Alton of Worcester reported before the New England Surgical Society at Portland, Maine, in 1931 a case of spontaneous intraperitoneal rupture of a tuberculous bladder. At that time in discussing his paper I took occasion to mention this case that I had seen and I find that my remarks are reported in the "Transactions of the New England Surgical Society for 1931" in the discussion of Dr. Alton's paper. I think, however, that I may report the case at this time and emphasize the points regarding diagnosis and treatment which I wish to make on this subject.

Patient F. G., aged 32, white, single, female, was seen by me in consultation December 15, 1930.

Previous History: Menstruated November 22nd, regular time. Has been flowing for five days, being ahead of time about ten days. She had been well until three weeks previous to my seeing her. She had been under treatment by her family doctor for a cough and pulmonary condition and ten days previous to my consultation had definite signs of a bronchopneumonia.

Present illness dates from five days ago, since which time the abdomen has been distended. There was a large mass in the lower abdomen, more prominent on the left side. The tumor was elastic and was regarded by her doctor as a possible ovarian cyst. To-day (December 15th), her condition has been improved until this evening when, in raising herself a bit to take her medicine from the nurse, she experienced severe pain and the sensation that something in the abdomen had burst. The patient's condition was extremely bad and it was evident that something unusual had occurred. Her doctor was immediately sent for. Consultation was asked and I saw the patient an hour or two after the occurrence of these symptoms.

Examination showed the patient in bed, a well-nourished woman, who appeared to be extremely ill, eyes rather staring, anxious looking, and breathing rapidly. The abdomen is distended and tense. There is some dullness over the pubes and about half-way to the umbilicus. The large elastic tumor which was previously present had apparently disappeared. Pulse was 100, getting decidedly weaker, and in less that one-half hour was very weak and irregular. Further questioning of the *experienced* nurse on the case revealed that for the past several days when the patient coughed she could not hold her urine and that there had been more or less dribbling of urine for several days; also that she voided at frequent intervals but only a small amount. A catheter was passed and ten to twelve ounces of bright blood or bloody fluid was obtained. A diagnosis of spontaneous rupture of the bladder was made and the patient was sent to the hospital for immediate operation. The further history of the

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†Jones, Arthur T. — Consulting Surgeon, St. Joseph's and Miriam Hospitals, Providence. For record and address of author see "This Week's Issue," page 1297.

case was obtained from the surgeon who operated upon her.

Upon arriving at the hospital she was examined. A catheter was passed and four ounces of boric acid solution put into the bladder. This returned and the diagnosis of rupture of bladder was questioned. The surgeon on duty was then sent for, and decided that she had a definite surgical belly and that there was an intra-abdominal hemorrhage and that immediate operation was indicated. A preoperative intravenous of saline solution was given. Spinal anesthesia was used and the abdomen opened. A large amount of free blood was found in the abdominal cavity and pelvis, and after palpation of the uterus and appendages, which were apparently normal, the bladder was palpated and a rent in the fundus found which admitted four fingers. The blood was sponged out, the rent in bladder closed with suture, and the abdominal incision closed. Just before the completion of the abdominal closure the patient expired on the table.

This case presents several points which I wish to make and which are the entire object of this short report. Dr. Arthur H. Crosbie in reporting a case of rupture of the urinary bladder (*Journal of Urology*, October, 1924), makes three definite points in the treatment of cases of rupture of the bladder. I wish to give those points here and to supplement them with further suggestions relative to these cases.

1. The importance of free suprapubic drainage in all cases, whether extra- or intraperitoneal rupture.

2. That there is no need of flushing out the abdominal cavity in cases of intraperitoneal rupture.

3. That it is not necessary to take time to sew up all the rents or tears in a bladder. Free drainage of the bladder using a one-half inch soft rubber tube. Nature will take care of the healing as the rents are bound to be fairly well approximated.

These general principles announced by Dr. Crosbie I wish to subscribe to and to add the following comments and suggestions regarding diagnosis and treatment.

1. That we may have a spontaneous rupture of the urinary bladder from overdistention which may occur along with some medical or surgical condition, or as a postoperative condition.

2. That the urinary bladder may rupture extraperitoneally or intraperitoneally when overdistended, with no history of trauma but simply from overdistention with comparatively little voluntary muscular effort on the part of the patient.

3. In arriving at a diagnosis of rupture of the bladder it is important to have at least sixteen to twenty ounces or more fluid put into the bladder and see how much return we get from this larger amount. A smaller amount of fluid put into a bladder which has a rent in the fundus is not sufficient to reach the fundus and the rent and the entire small amount may be returned through the catheter. If, however, we put in at least sixteen ounces, enough to well fill the bladder, we will get a definite indication from the amount of return.

4. These cases should have a transfusion at the beginning and during operation.

5. It is unwise to remove the blood from the pelvis and abdominal cavity. If the bladder is clean there is very little probability of infection and if the bladder is not clean, but is an infected bladder, we gain nothing by sponging out or flushing in a case of this type, as we will not lessen the infection which has already taken place.

6. Blood in the abdomen should be left in and not sacrificed as it means a great deal to the welfare of our patient. This is demonstrated very definitely in the profuse bleeding of extrauterine pregnancy or in surgery where we have a great amount of bleeding and in which we can squeeze the blood from the sponges and pads and leave it in the abdomen to act, as we might say, as a definite auto-transfusion. It is surprising how much benefit a patient gets from leaving this blood in and how different the convalescence is from those cases in which this large amount of blood is sponged out and sacrificed.

7. The choice of anesthetics in these cases is important. A general anesthetic or a local novocain block is far preferable in these cases with extreme hemorrhaging and very low blood pressure.

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DISCUSSION

C. L. DEMING, M.D.: There is one other thing, I think, which may be done to make a diagnosis in ruptured bladder cases, which is the injection of air followed by x-ray. Intraperitoneal rupture will show the air under the diaphragm, while an extraperitoneal rupture will disclose the air in the tissues about the pelvis.

B. D. WETHERELL, M.D.: Would not intravenous urography show a ruptured bladder? Last month I had the opportunity of seeing a girl of 35 who had a tuberculous bladder and I recovered the acid fast bacilli from the left kidney which was a large

one, but she had no right kidney at all. She died about two months later.

RICHARD CHUTE, M.D.: Would there be any objection to injecting sodium iodid in making the diagnosis or would that be too irritating?

A. T. JONES, M.D.: It would seem to me that it would be. I should think that all that really would be necessary would be some plain solution, sterile water or saline or boric acid, and see if you get a return. The doctor on my left has suggested the injection of lipiodol. It would take a considerable amount of that and it would require x-ray plates, whereas we can come to the conclusion of ruptured bladder if we put in a small amount and get it all back. The error in these cases was in putting in a large amount.

In regard to the question Dr. Wetherell asked I can hardly comprehend how a skiagram would give a picture of the bladder sufficiently good to arrive at the conclusion of a rupture of the bladder.

C. J. E. KICKHAM, M.D.: Very little has been said with regard to the use of cystoscopy in the diagnosis of rupture of the bladder. During the last several years at the Carney Hospital we have diagnosed three cases of ruptured bladder by means of cystoscopy. In each of these cases the rent was visualized. In one of these cases we just cystoscoped the patient in bed, without any upset on the part of the patient, and absolutely no trauma. I feel that the cystoscope is useful in the diagnosis of rupture of the bladder.

RIGHT RENAL CALCULUS ASSOCIATED WITH MULTIPLE BILIARY CALCULI*

BY CLINTON N. PETERS, M.D.†

MRS. H., aged 36. February 5, 1931.

Complaint: Pain in the upper right quadrant accompanied by nausea and vomiting.

X-ray shows shadow 3 mm. lying between eleventh rib and transverse process second lumbar vertebra.

Cystoscopic Examination on February 5:

Plain Plate: Catheters in position show shadow triangular in area one-half inch below end of right catheter. *Diagnosis:* Right renal calculus.

Pyelogram shows normal left kidney. Right side pyelogram includes shadow in renal pelvis. *Diagnosis:* Calculus right renal pelvis.

Physical Examination: Essentially negative except some tenderness in upper right quadrant. This is more marked over the anterior surface than on the vertebral angle. Advise dye test for gall bladder.

Graham-Cole Test: Kerasol by mouth shows malfunctioning gall bladder with shadow of calculus outside gall bladder which is faintly mottled. Intravenous Graham-Cole test: Gall bladder is seen below twelfth rib. This is mottled with negative shadows consistent with biliary calculi. The positive shadow representing renal calculus is seen through the other shadows. One hour after fatty meal there is no change. *Diagnosis:* Malfunctioning gall bladder with multiple calculi.

Hospital History: March 9, 1931—Moderate-sized gall bladder full of calculi removed. Convalescence uneventful. Left hospital March 26. On May 7, 1932, readmitted with same symptoms. On May 9, cystoscopic examination. X-ray plate showed renal calculus to be in relatively same position. May 11, through right oblique incision the right kidney pelvis was opened and calculus removed. Convalescence uneventful and patient left the hospital on June 3, 1932.

Follow-Up: Patient seen on September 5 and December 20, in good health and without symptoms.

*Presented before the New England Branch of the American Urological Association, February 15, 1934.

†Peters, Clinton N.—Attending Urologist, Maine General Hospital. For record and address of author see "This Week's Issue," page 1297.

A REPORT OF FOUR UNUSUAL CASES*

BY W. G. TOWNSEND, M.D.†

IN the first place, I feel that I owe you all an apology because there is nothing instructive or highly scientific in any of these pictures. To me they are just interesting but after all, if it were not for the interesting and bizarre cases, it would not be much of a life we lead.

The first picture is of a man of twenty-five with typical left renal colic. Intravenous urography, after cystoscopic examination was unsatisfactory, showed a normal left kidney and a hypoplastic right kidney. To me the interesting thing was that his pain was on the left side and had nothing to do with the hypoplastic right kidney.

The next picture is of a woman of forty-three with staphylococcus aureus infection of her bladder. A routine check-up revealed congenital solitary right kidney. We could find no ureteral orifice and no dye came through, and again an intravenous urography showed nothing in her left side at all. She is well and healthy.

The third is a woman in her fifth pregnancy. She had right renal colic. She has a stone here and here. We got this plate, then she happened to sit up or turn around and the next plate shows the stone in the transverse position. The stone in the pelvis of the kidney turned on its long axis.

And, just to prove that all kidney stones in Vermont are not small, I have this one which weighed 398 grams.

*Presented before the New England Branch of the American Urological Association, February 15, 1934.

†Townsend, W. G.—Associate Professor of Urology, University of Vermont College of Medicine. For record and address of author see "This Week's Issue," page 1297.

VERMONT STATE MEDICAL SOCIETY

THE DIAGNOSIS AND MANAGEMENT OF OBSTRUCTIVE JAUNDICE*

BY HOWARD M. CLUTE, M.D.,† AND NEIL W. SWINTON, M.D.†

THE successful management of obstructive jaundice is primarily related to the early diagnosis of an obstructive lesion in the larger biliary ducts. Here, as in many other surgical conditions, we are so dependent on the recognition of a partial or complete obstruction to the common duct by the physician first in charge of the patient that it is of definite importance to review briefly the significant data from which a diagnosis of such obstruction may be made in any patient. There is an unfortunate tendency among many lay-people and practitioners of medicine, as well, to consider jaundice, which is not accompanied by alarming symptoms, as a more or less innocuous symptom for which no active investigation is indicated. The policy of postponing active investigation for weeks, or even months, in jaundiced patients is directly responsible for the frequency of complications and fatal results in those jaundiced patients who must come to surgery. It is our belief that patients with jaundice should be considered as having an obstruction to their common duct, until other cause for the jaundice is found; that jaundice lasting more than a few days should be carefully investigated and its cause determined; and that jaundice proved to be obstructive in origin should, in general, be submitted to active surgical measures for its relief.

We wish to review at this time the diagnostic measures which are of value to us in active clinical work in the diagnosis of obstructive jaundice. First, it is well known that obstructive jaundice almost always arises from one of three conditions; stone in the larger bile ducts, strictures of the larger bile ducts, or malignancies involving the bile ducts. With this situation in mind, therefore, one very commonly can determine from the clinical history alone whether a patient with common duct obstruction is suffering from stones, stricture or cancer.

The clinical history of common duct stones is well known. In the first place the history is that of a recurrent disease and not of a progressive process. Attacks of pain are the prominent features. In the typical case these attacks of terrific pain are followed by fleeting jaundice. Secondary digestive disturbances consist mainly of distress and pressure in the epigastrium and most particularly of gaseous distention and eructation.

The typical history of stricture of the common duct differs materially from that of stones. Usually the patient has had a previous operation upon the biliary tract; commonly a cholecystectomy. If inquiry is made into the postoperative course it will be found that for the first few days after the operation all went well. Soon, however, marked bile drainage was noted from the drainage tract, and this drainage of bile persisted for a matter of six to eight or more weeks. Gradually the external biliary drainage ceased and jaundice, either complete or partial and intermittent, was noted. Since the date of the operation, in many instances, jaundice has been complete and constant. In other cases, in which the stricture is less complete, attacks of fever, chills with transient jaundice and more or less epigastric distress and discomfort have been noted. In strictures of the common duct, attacks of serious pain are rare in the clinical history.

In malignancy of the pancreas involving the common duct or one of the larger bile ducts, the typical clinical history is well known. Classically it is marked by the development of a painless jaundice accompanied by well-marked weight loss. Occasionally, however, malignancy of the pancreas with increasing jaundice may be accompanied by severe attacks of pain, since at times gall stones are present in the gall bladder to cause the pain in malignancy of the pancreas.

On clinical examination in obstructive jaundice there are relatively few findings which by themselves alone will determine the diagnosis. Thus, local tenderness and local spasm following attacks of upper right abdominal pain are significant of pathology in the biliary system. It has been our experience that local tenderness is commonly present after attacks of common duct colic if the gall bladder is present, but if common duct colic occurs after the gall bladder has been removed, such local symptoms are not prominent.

When the obstruction to the common duct is complete and lies below the junction of the cystic and common hepatic bile duct, as in cancer of the head of the pancreas, dilation of the biliary tree, including the gall bladder, is present. A dilated gall bladder has been palpable, however, in only 33 1/3 per cent of our recent cases of

*The Lahey Clinic, Boston, Mass.
Read at the Annual Meeting of the Vermont State Medical Society at Barre, October 6, 1933.

†Clute, Howard M.—Surgeon, Lahey Clinic. Swinton, Neil W.—Surgical Fellow, Lahey Clinic. For records and addresses of authors see "This Week's Issue," page 1297.

malignancy involving the biliary tract, since in many cases the malignant process obstructs the biliary tract proximal to the cystic duct or invades the cystic duct itself and so prevents dilatation of the gall bladder.

Jaundice is, of course, the one outstanding clinical finding which at once points to a possible obstruction of the common duct. Because of this fact and because the changes in physiology, which accompany jaundice, may make these patients serious surgical problems, it is important that this clinical finding be considered with especial care.

It has been taught that common duct stones were usually associated with jaundice, either transient or constant in type. In a previous analysis of our[1] cases of common duct stones in seventy-two patients, it was found that thirty per cent of the patients had no jaundice at the time of their operation and had no history of jaundice in the past. Judd[2] has reported that twenty-five per cent of the common duct stones seen in the Mayo Clinic gave no history of jaundice in the past and had no jaundice at the time of operation. For the purposes of this particular study we have reviewed all the cases of biliary tract disease seen at the Lahey Clinic in 1931 and 1932. In these two years there were forty-six cases of common duct stones, of whom sixty-three per cent had a history of jaundice at the time of operation. Thirty-seven per cent, however, of these forty-six cases of proved common duct stones had no jaundice at the time of operation and had no history of jaundice in their previous illness. This demonstrates, we believe, once again very emphatically that the presence or absence of jaundice cannot be considered a positive criterion for the presence of common duct stones.

In strictures of the common duct, jaundice has been present either in the history or at the time of examination in every case that we have ever seen. In the six cases treated in the past two years all had jaundice at the time of their admission to the Clinic.

Jaundice is a common symptom in malignancy involving the common duct, but it is not necessarily an early symptom. Thus, in one patient whom we had personally followed for some months with vague epigastric disturbances, jaundice was not present until eight days before operation. At operation, however, malignancy of the pancreas was found which by slowly increasing pressure upon the common duct had made the common duct dilate to nearly three-fourths of an inch in diameter. Only when the obstruction to the duct became complete, however, did jaundice actually appear in this case. In the cases of malignancy involving the bile ducts seen in the past two years, jaundice was present in fifty per cent and absent in fifty per cent.

The laboratory data, on which we must depend for determining the actual presence of obstruction to the common duct as a cause of the jaundice, are largely designed to estimate the origin and degree of the jaundice. It has been our experience that the very simplest laboratory examinations of testing the urine for bile and observing the color of the stools not infrequently are quite sufficient to settle the diagnosis if they are repeatedly performed and correctly interpreted. In clinical practice bile in the urine and gray-colored stools mean obstruction of the common bile duct. We have occasionally been quite surprised to find showers of bile, so to speak, in the urine in patients who had attacks of excruciating upper abdominal pain with no visible jaundice. To observe this bile, however, the urine must be tested repeatedly during the hours and days following the attacks of pain. Furthermore, in these cases such a shower of bile in the urine is occasionally accompanied by a definitely clay-colored stool, which confirms the diagnosis. When bile is present in the urine and the stools are persistently brown in color, however, we know at once that if the jaundice is obstructive in type the obstruction is not complete and we recognize that of course the jaundice may be of infectious or hemolytic origin under these circumstances.

Studies of the urobilinogen in the urine are readily performed and give helpful information in two ways. First, the absence of urobilinogen from the urine means complete obstruction of the common bile duct. Secondly, large amounts of urobilinogen show well-marked liver damage. A normal urine urobilinogen shows the absence of complete common duct obstruction and the presence of good liver function.

Various methods of precision are at hand for the estimation from blood examination of the degree of retention of the bile pigments. Of these methods, we prefer in our clinical work to use the bilirubin test, which is a relatively simple test giving us the precise figure or the amount of bile pigment in the blood stream. One may consider that the normal individual will have from one tenth of a milligram per 100 cc. of blood to five tenths. When the bilirubin is more than five tenths, jaundice is latent and when the bilirubin is one and over the jaundice is usually visible. Here again, repeated studies of the bilirubin are of greater value than single tests. After a serious attack of abdominal pain the bilirubin may be elevated for a day or so with no visible jaundice. In patients who have obvious jaundice, daily studies of the bilirubin determine whether the jaundice is stationary or increasing or decreasing in severity. Furthermore, bilirubin estimations give us inferential evidence of the presence or absence of liver damage. Thus, we may infer that when the bilirubin is constantly elevated to a high figure over many days that liver damage is doubtless present.

X-ray evidence in common duct obstruction is usually of no practical value. Plain x-ray plates of the abdomen, however, which show gall stones are of course very significant in jaundice. We have avoided giving gall bladder dye to patients with jaundice because we feared the possible reactions that might ensue. We are familiar with the fact that certain men have employed this procedure yet we feel that in the presence of jaundice the information which gall bladder dye may give is not worth the added risk of its administration.

Duodenal drainage for diagnostic purposes has been perhaps the most satisfactory and dependable laboratory test for determining the cause of jaundice that we have used. Duodenal drainage can be used with relatively little disturbance in even the most seriously jaundiced patients. Duodenal drainage tells us first whether the common duct is patent, and whether bile is entering the duodenum. If the obstruction to the common duct is complete, occasionally the gastroenterologist will tell us that it is due to malignancy involving the ampulla, as is shown by the recovery of blood and epithelial structures from the duodenum. If duodenal drainage returns bile from the duodenum we know, first, that the common duct is not completely obstructed, and secondly, by the microscopic examination of the bile further important data are obtained. Thus, the presence of calcium bilirubin crystals is diagnostic of calculus formation in the gall bladder or main bile ducts. The presence of pus and epithelial débris is significant of an infectious process. Failure to obtain gall bladder bile on stimulation indicates absence of gall bladder function. In thirty-one cases in whom duodenal drainage was carried out by Dr. Wilkinson, in the Gastroenterological Department in the Clinic, thirty correct diagnoses have been established at operation and one error has been noted. We recommend this procedure particularly for use in jaundiced patients and in those patients in whom the usual gastroenterological studies have been uncertain.

In the last two years we have used the galactose tolerance test to determine whether the jaundice was infectious or hemolytic or obstructive. At best it seems to us that this test is but confirmatory of other findings and by itself alone could not be depended upon to settle the diagnosis.

Assuming that, from the clinical history and examination and from the laboratory studies, obstructive jaundice is present, either from stones, stricture or cancer, surgical intervention is indicated save in those cases long neglected and obviously hopeless, who would certainly not withstand any operative procedure. The surgery of obstructive jaundice has always been considered extremely hazardous. These patients do not stand operation well, because kidney damage is sometimes present; liver damage is constantly present; and because many of them have a tendency to bleed after operation. Only as we recognize these complicating factors, that may possibly arise in these patients, and as we take special precautions to prevent them, can we hope to operate successfully to remove the cause of the obstruction to the common duct. In estimating the operative risk in these patients we must consider in each one certain significant data. Thus, studies of the non-protein nitrogen of the blood and of the phenolsulphonephthalein excretion in the urine give us an immediate index of the degree of kidney damage which has arisen from the concentration of the bile salt in the blood and in the urine and from the diminished fluid intake which is usually present.

The degree of liver damage cannot as yet be satisfactorily measured by any single test available for clinical use. In clinical practice liver damage, however, is a very real condition though it may not be measured in actual figures. We may estimate the probable degree of liver damage by the history of the length of the jaundice. Obstructive jaundice going on for months invariably is associated with serious liver damage. A high secretion of urobilinogen in the urine is direct evidence of the inability of the liver to metabolize urobilin in the blood stream into bilirubin. A constantly high bilirubin is further evidence of probable liver damage.

The tendency to bleed in these patients cannot be accurately estimated by any laboratory test, which has, as yet, been devised. The bleeding time and the coagulation time are not reliable for this purpose. The clotting index is not practical. A rapid sedimentation rate in which the red cells in the blood settle more than thirty millimeters in thirty minutes has been said, by Linton and others, to indicate a probable tendency to bleed after operation. In our experience this test is by no means accurate, yet it is the only test with which we have had experience, which is highly suggestive and, therefore, of distinct clinical value in prognosticating the tendency of patients to bleed in obstructive jaundice.

It is fortunate that the three major complications, which may occur after operation in obstructive jaundice, can be largely controlled and prevented by the same therapeutic measure; namely, the administration of large amounts of fluid and of carbohydrate, particularly in the form of glucose. The high fluid intake dilutes the toxic material in the blood stream and increases kidney secretion; thus, diminishing kidney damage. The high carbohydrate intake, which is given as glucose intravenously and subpectorally and as carbohydrate food by mouth is of great importance in restoring the glycogen reserve in the liver and so limiting liver destruc-

tion and helping regenerate liver lobules already seriously damaged by long obstruction. Not only should a diet high in carbohydrates be given these patients, but as has been recently shown by Mann, protein should be strictly omitted from their diet.

The administration of fluid, and particularly of glucose, is the best preventive measure at our command for diminishing the tendency to bleed after operation. It is the experience of Ravdin, Linton and others, as well as ours, that this measure alone is adequate to control the hemorrhagic tendency in most patients with obstructive jaundice. When, in spite of this measure, hemorrhage occurs it can, in most cases, be controlled by blood transfusions. The use of calcium chloride intravenously or calcium lactate by mouth, or both, in these patients has been an accepted clinical procedure for the prevention of postoperative bleeding. There are some who believe that calcium neither prevents hemorrhage nor stops it once it occurs, while others find it is of value. It is our present belief from our clinical experience that the routine use of calcium is not indicated. If, however, postoperative oozing occurs in spite of adequate fluid and glucose administration, and in spite of blood transfusions, we feel that calcium should be added at once to our methods of treatment since it is the only other known method which may result in checking postoperative bleeding.

It is desirable to relate the actual procedure that we undertake when a seriously jaundiced patient with common duct obstruction is admitted to the hospital. Our first object is to obtain blood for the estimation of the bilirubin, non-protein nitrogen and sedimentation rate and to begin at once the administration of fluid and glucose. Constant venoclysis has proved, in our experience, to be the most satisfactory method by which these objectives may be obtained. On admission then, a cannula is at once inserted in a vein, which has been opened and made ready under local anesthesia, and from this cannula sufficient blood is taken for the tests desired. Venoclysis with salt solution and glucose alternating with distilled water and glucose, so that too much chloride will not be administered, is at once established. By this method three to five thousand cubic centimeters of fluid and one hundred to two hundred grams of glucose or more can be given in each twenty-four hours. The patient is not disturbed. Venoclysis once established in a vein may go without further manipulation for five to eight days. During this same period the patient is given fluids freely by mouth as he may take them and carbohydrate diet, consisting of oatmeal with sugar and cream, milk, custard, fruit juices and ginger ale, et cetera.

In order that we may follow the course of the patient, as shown by the laboratory examinations, and in order that we may note the fluid intake and output very clearly, we have devised a jaundice chart, which has been of definite clinical value in these patients.

The decision as to when operation should be undertaken and how long the preoperative treatment, with fluids and glucose, should continue is frequently difficult. In seriously jaundiced patients five days of fluid and glucose before operation is usually the least time that should be consumed. In certain cases, who are stuporous or delirious and in whom evidences of kidney failure are marked, seven and eight days may be necessary. In other patients, however, in whom it is obvious that complete obstruction to the common duct is present, and in whom the general condition is satisfactory, operation may be done on the fifth or sixth day of treatment. In general, when doubt exists as to the patient's ability to withstand surgery, venoclysis should be continued for a longer time and preparation should be continued up to eight, ten or even twelve days before operation.

The management of these patients at the time of operation is a technical problem on which we wish to make but one or two general remarks. The first consideration in the operation is the return of the bile stream to the intestinal canal. Occasionally external biliary drainage without returning bile to the intestine is the only procedure possible but whenever it is possible the return of the bile to the intestine is most essential. The presence of the bile in the intestinal canal has a most beneficial effect in obstructive jaundice. The second consideration in the surgery of obstructive jaundice is the permanent relief of the obstruction by the removal of the obstructing stone, the repair of the stricture, or the short-circuiting of the bile tract around the obstructing cancer. Occasionally it is necessary to carry out these procedures in a short time with as little intra-abdominal manipulation as possible and with as little hemorrhage and shock as possible. The anesthesia, as is generally known, should bring no added burden to liver and kidney; thus, ethylene oxygen administered by intratracheal catheter and local anesthesia in the operative field are the ideal procedures. Spinal anesthesia, save in the exceptionally good risk, may be distinctly dangerous in serious obstructive jaundice.

Following operation the first seven days are the days in which the major complications most commonly occur. Hemorrhage is the particular danger which must be watched for and controlled. In patients well prepared before operation, postoperative kidney failure and liver failure have not been serious factors in our recent experience. The prevention of postoperative hemorrhage should start with blood transfusion in the seriously jaundiced patient at the time of operation. Glucose and salt solution are constantly administered by venoclysis for the first five to seven days after operation. The

sedimentation rate is followed very closely and when it is rising we are at once suspicious of the possibility of hemorrhage. Pink staining in the biliary drainage, slight oozing about the sutures in the skin of the wound, frank oozing along the drainage tract, oozing from the gums, blood in the urine or stools demand immediate and if need be repeated transfusions. Blood donors must be matched and grouped before operation and be readily available so that they may be used at once when the first signs of oozing occur. It is our custom to have several donors available for each patient with obstructive jaundice before operation is undertaken.

In patients having obstructive jaundice due to a benign lesion, in whom complete recovery is possible, if hemorrhage does occur, there is almost no limit to the lengths which we must go to control bleeding. Thus, in a recent serious case twelve blood transfusions were given, of which eight were given within three days during the period of the most serious and extreme bleeding. Her recovery was complete and satisfactory. When hemorrhage occurs from obstructive jaundice due to a hopeless stricture within the liver substance not amenable to surgery, or to some hopeless malignancy such extreme measures, as used in the case just mentioned, are not necessarily indicated.

Since we have adopted this method of management in obstructive jaundice, our results have been increasingly satisfactory. Reviewing the cases seen and cared for in 1931 and 1932 we find that there have been thirteen patients with definite and serious obstructive jaundice due to common duct stones. All of these were operated upon and four of these patients had bleeding postoperatively. No patients in the group died from hemorrhage. One of the thirteen patients died eight weeks after operation from multiple liver abscesses.

In the same interval there were six cases of stricture of the common duct. Five of these were sequels of previous operations upon the biliary tract done elsewhere and one resulted from an automobile accident which ruptured the common duct. Three of these patients died from hemorrhage and liver failure. Their strictures were within the liver substance and so could not be repaired surgically. All had been jaundiced for months or years before admission. Three of these stricture patients made recoveries, since their strictures were so situated that they could be repaired. One of these three had serious hemorrhages after operation but was carried through safely by repeated transfusions, six in number.

In 1931 and 1932 we operated upon fifteen patients with malignancy involving the biliary tract. Of these patients twelve recovered from the operation and left the hospital and three died from inanition. Three had definite bleeding postoperatively controlled by blood transfusions and none died of hemorrhage.

It is to be noted that in the thirty-four cases of obstructive jaundice operated in the Clinic in the last two years, hemorrhage has occurred ten times and was a fatal factor in three hopeless stricture cases. Fatal hemorrhage did not occur in any benign obstruction of the biliary system.

In summary: The successful management of obstructive jaundice depends upon:

1. The early diagnosis of obstructive jaundice. We feel that jaundice in adults should be considered of the obstructive type until proved otherwise and any case presenting itself with jaundice should have the benefit of immediate study to differentiate it from the infectious and hemolytic forms.
2. There are in clinical practice only three main causes of obstructive jaundice. Common duct stones, strictures of the ducts, and malignancies involving the ducts.
3. The diagnosis of obstructive jaundice can commonly be made from the history, presence of bile in the urine and the finding of clay-colored stools.
4. Certain other laboratory data give us additional information concerning these cases. Absence of urobilin in the urine indicates complete obstruction of the ducts. Large amounts of urobilin indicate liver damage. Repeated bilirubin determinations indicate the course of the jaundice and some inference of the extent of liver damage. Duodenal drainage is one of our most accurate procedures in determining the presence of common duct obstruction and aids in the differential diagnosis of its cause.
5. The diagnosis of obstructive jaundice being established, the patient should be considered a surgical problem and immediate steps taken to prepare him for operation.
6. The adequate utilization of fluids, glucose, saline and whole blood transfusions will prepare these patients for operation. Operation should be undertaken when no further improvement in the patient is noted with the use of the above measures.
7. Following operation, of the three usual complications, bleeding is our most serious and feared complication. Bleeding following operation is best treated by whole blood transfusions.
8. In the past two years, in thirty-four cases of obstructive jaundice, bleeding occurred following operation ten times. Death occurred from hemorrhage in three hopeless stricture cases. No death from hemorrhage occurred in any benign obstructive lesion of the common duct.

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MISCELLANY

THE CLINICAL MEETING OF THE VERMONT STATE MEDICAL SOCIETY

MARY FLETCHER HOSPITAL, BURLINGTON
MAY 4 AND 5, 1934

For some years the officers of the Society have considered the wisdom of holding a mid-year meeting of the Society, conducted along entirely different lines from those of the regular State Meeting, i.e., clinical demonstrations instead of the reading of papers, and for the first time in the history of the Vermont State Society a clinical meeting was held in Burlington on May 4 and 5. It was an experiment and there was much speculation beforehand as to the response regarding the attendance in numbers and also regarding the reception of the program. The registration of 146 men was larger than the average registration at the Annual State Meeting and the demonstrations were received with pronounced expressions of approval or almost enthusiasm, and the writer believes that the holding of such meetings by State Societies is a most valuable function of the organization, in the smaller States to be held in connection with the leading clinical center, and in the larger States perhaps being held as sectional meetings. The program is a bit too ambitious for a County Society unless it is quite large.

There is no doubt but that this mid-year Clinical Meeting will be adopted as a permanent part of the activities of the Vermont Society.

The exercises as outlined in the program are detailed below:

At the meeting of the Vermont State Medical Society, held in Barre last October, it was voted to hold a mid-winter meeting in Burlington with the coöperation of the College of Medicine of the University of Vermont. However, as it later seemed that many physicians in the state would be hindered by weather conditions, from attending a two-day session in February, the Executive Committee of the State Society decided to postpone it until early May.

On Friday, May 4, and Saturday, May 5, a clinical meeting of the Vermont State Medical Society was held at the Mary Fletcher Hospital, Burlington, Vermont. The program was conducted by the faculty of the University of Vermont College of Medicine, with C. H. Beecher, M.D., Professor of Medicine, acting as presiding officer. The other members of the committee in charge were Dr. E. H. Buttles and Dr. Lyman Allen, and, ex officio, Dr. T. S. Brown, Superintendent of the Mary Fletcher Hospital, and Dr. J. N. Jenne, Dean of the College of Medicine. One hundred and forty-six physicians attended the sessions.

The program consisted entirely of clinical demonstrations and discussions; no formal papers were presented. Most of the sessions were held in the surgical amphitheatre of the hospital; group discussions of various subjects were held in various other parts of the hospital and a few reels of medical motion pictures were shown in the auditorium of the Fleming Museum. Through the courtesy of the Mary Fletcher Hospital, visiting physicians were tendered a complimentary luncheon on Friday noon, in the main dining room of the hospital. On Friday evening an informal dinner was served in the ballroom of the Ethan Allen Club, after which the guests enjoyed the privileges of the club. Music was furnished during the dinner by the University of Vermont male quartet.

At the close of the meeting Dr. J. H. Woodruff, of Barre, President of the Vermont State Medical Society, extended the thanks of the Society to the committee, the officers of the Mary Fletcher Hospital and the Medical College. Dean Jenne announced that the College of Medicine would sponsor a similar clinical meeting next year.

In the exhibit hall were several interesting displays of x-ray films and photographs of the cases discussed at the meeting, as well as films and gross specimens of various types of heart lesions. These were prepared and presented by the Department of Pathology. The Department of Anatomy exhibited a number of dried skulls and serial sections of the head to demonstrate the anatomy of the mastoid cells and their relation to the adjacent structures.

Dr. C. A. Newhall, of the Dermatology Department, opened the program on Friday morning by presenting four cases, one of eczema, another of psoriasis, a third of scabies, and a fourth of alopecia areata. He outlined the diagnostic features of each case and gave indications and suggestions for treatment. In his discussion of eczema Dr. Newhall demonstrated, by the use of diagrams, the stages through which the disease may pass. He also recommended the use of the so-called "patch test" in cases where external irritants are thought to be etiological factors. At the close of his discussion, printed copies of several standard formulae of ointments for application in eczema, psoriasis and scabies were given to the guest physicians.

The next feature on the program was conducted by Dr. C. K. Johnson, Professor of Pediatrics, who presented several feeding cases. The first infant shown was one which was just recovering from a well-developed rickets, as indicated by frontal bosses, moderate rachitic rosary, a distended tympanitic abdomen and typical x-ray changes in the lower ends of the ulna, radius and femur. The child, which had been on a diet of cow's milk exclusively until he was about eight months' old, was given cow's milk with lactic acid, cereal, egg yolk and vegetables. Viosterol, Haliver oil, and ultraviolet radiation were administered. The infant was shown at the age of ten and a half months, at which time the general improvement was quite marked, and the x-ray examination showed complete regression of the bone changes. The second case was one of nutritional anemia in a child, sixteen months old, which had

been on a diet of cow's milk and which, when first seen, had a hemoglobin percentage of 23 and erythrocyte count of 2,220,000. After regulation of the diet, a small blood transfusion and administration of copper and iron, the general condition rapidly improved, and the blood count returned to normal.

Following Dr. Johnson was Dr. T. E. Hays, Instructor in Physiotherapy, who discussed the prevention and correction of deformities of arthritis. Dr. Hays illustrated, with x-ray films and with patients, the more usual types of deformities that commonly result from atrophic and hypertrophic arthritis and the means employed to avoid them as the disease advances, or to correct them after they have developed. He particularly warned against the flexion deformity of the dorsal spine which cramps the chest and causes serious interference with the proper function of the heart, lungs and abdominal organs. Dr. Hays demonstrated several devices which are of value in preventing or treating deformities, and discussed the use of such measures as heat, massage, rest and exercise.

Dr. W. G. Townsend, Professor of Urology, next spoke on "Transurethral Prostatic Resection," briefly describing the operation, the indications for its use and the results to be expected following it. He stated that this type of operation was of greatest value in patients who have obstruction resulting from median bar or unilateral enlargement of a lateral lobe, in patients whose general condition prohibited the more serious complete prostatectomy, or to secure better drainage in patients with carcinoma of the prostate. Dr. Townsend's discussion was illustrated with lantern slides and a demonstration of the instruments used.

"Flat Feet" was the topic discussed by Dr. R. L. Maynard, of the Department of Orthopedic Surgery. Dr. Maynard first described the anatomy of the foot and ankle, with special reference to the structure of the arches and the line of weight-bearing. He next explained the anatomical and physiological changes resulting from faulty weight-bearing, strain, arthritis and paralysis, with the symptoms and signs of each. The differences between metatarsal and longitudinal arch weakness were discussed, together with the alterations in line of weight-bearing which are brought about by each. In describing various modes of treatment, Dr. Maynard explained the proper ways of applying adhesive straps, and of making plaster impressions of the feet, from which metal plates may be made, and discussed the features which good fitting shoes should have to aid in correction of the deformity. In closing Dr. Maynard demonstrated how a foot should be strapped with adhesive plaster.

At this time the assembly divided into various groups which attended the following demonstrations:

"Preparation of Formulae for Infant Feeding," under the direction of Dr. C. K. Johnson.

"Physiotherapy," under the direction of Dr. T. E. Hays.

"The Stethophone," by Dr. H. E. Upton.

"Transurethral Prostatic Resection," by Dr. W. G. Townsend.

"Mastoids," by Dr. M. C. Twitchell.

"Plaster Casts of the Feet," by Dr. R. L. Maynard.

Opportunity was afforded for general discussion of problems relating to the subjects under consideration. The meeting adjourned for luncheon at 1 P.M.

The Friday afternoon session opened at two o'clock with a discussion by Drs. P. E. McSweeney and E. D. McSweeney, of the Gynecology Department, of the commoner tumors of the female generative tract, and the properties and modes of application of radium. Dr. P. E. McSweeney demonstrated gross pathological specimens of tumors, and explained briefly the symptomatology and treatment for each. He also exhibited a patient with a complete inversion of the uterus headed by a large submucous fibromyoma attached to the fundus, and described the technic of the operation which was proposed to correct this condition. Dr. E. D. McSweeney gave a short résumé of the discovery and characteristic features of radium. He demonstrated radium needles and the different types of applicators which may be used. He also discussed the types of conditions which were particularly suited to radium therapy, the methods of application and the dosage employed.

The Department of Ophthalmology, as represented by Drs. K. C. McMahon and A. L. Larner, next conducted a clinical demonstration on the non-surgical treatment of strabismus. Dr. McMahon, after explaining the necessity for early correction of squint, outlined the steps for adequate treatment which include visual training of the affected eye, proper refraction, using drops, fusion training, and general constitutional measures for building up the child's health. Dr. Larner explained the optical principles involved in the development and subsequent correction of strabismus, illustrating his remarks with blackboard drawings. Drs. McMahon and Larner closed by showing about a dozen children who were receiving non-surgical treatment for strabismus.

The Department of Surgery was represented by three speakers, Dr. G. M. Sabin, Dr. W. T. Rees and Dr. B. D. Adams.

"Skeletal Traction" was the subject of Dr. Sabin's discussion. A fracture-bed, upon which a skeleton was placed, was wheeled into the amphitheatre and the various appliances used to give skeletal traction were exhibited before the gathering. The Kirschner wire and apparatus were used in demonstrating the reduction of certain fractures of the femora and tibiae. Following this, x-ray films of several fracture cases were shown to illustrate the value of skeletal traction, especially in badly comminuted fractures of the tibia and femur.

Dr. Rees described the use of one per cent aqueous solution of gentian violet in the treatment of extensive cutaneous burns. The advantages of gentian-

violet over tannic acid and other drugs, the technic of application, and the general management of the case were all briefly but comprehensively discussed, and two patients who had received the gentian-violet treatment were shown. Both patients had been seen shortly after receiving their burns, which were very extensive, both patients were comfortable and free from pain within a short time after the application of gentian violet; both had been skin-grafted and had healed without contractures.

Dr. B. D. Adams presented two cases, one of lung abscess and one of chronic empyema, each treated by thoracoplasty. The first was a man, thirty-one years of age, who developed an abscess of the lower lobe of the right lung following the development of osteomyelitis in a compound fracture of the mandible. Failing to get results from postural drainage and medical treatment, a preliminary operation was done at which time portions of the third, fourth and fifth right ribs were removed and gauze inserted to produce pleural adhesions. A week later, after a blood transfusion, the abscess cavity was explored, heavy suture material inserted into the mesial side of the roof of the cavity, and a portion of the roof cut away. The cavity was wiped with plain gauze and packed with weak iodoform gauze. The wound and fistula closed and three months later appeared to be well healed without residual infection. The second case was of a boy, fourteen years of age, who developed an empyema of the left pleural cavity following lobar pneumonia in the spring of 1933. Drainage proving unsuccessful, a two-stage thoracoplasty was done, with the removal of almost all of the upper ten left ribs. Following the second stage, the wound healed completely and the patient, with no apparent residual infection, was shown, five months after the wound closed.

Following Dr. Adams' discussion, group demonstrations were conducted in different portions of the hospital. The Drinker Respirator was demonstrated by Dr. E. L. Amidon.

"Determination of the Basal Metabolic Rate" was explained by Dr. A. G. Mackay, who also demonstrated the metabolism machine.

Dr. W. R. Doane demonstrated the electrocardiograph and methods of making electrocardiograms.

The afternoon session came to a close with the exhibition of several reels of motion pictures which showed the normal heart and its conduction pathways, with special reference to the production of the waves seen on the electrocardiogram, and the experimental production of the various arrhythmias in a dog's heart.

The Saturday morning session opened with a discussion of the Parkinsonian syndrome by Dr. T. J. Allen, Assistant Professor of Neurology. This symptom group was described as characteristic of paralysis agitans and as a frequent sequela of encephalitis. The neuropathology was briefly considered, and the various symptoms were described with reference to their characteristics. Two cases were presented, one a case of paralysis agitans in a patient showing the beneficial effect of tincture of stramonium, the other a case of a postencephalitic subject who also was being helped by stramonium. Dr. Allen exhibited a number of photographs of children showing the postencephalitic variety and of adults showing the changes resulting from paralysis agitans. Particular emphasis was placed in the discussion on stramonium and scopolamine.

The Department of Medicine devoted the next hour and a quarter to the consideration of the rheumatic, syphilitic, arteriosclerotic and toxic heart conditions. Dr. P. K. French, Associate Professor of Medicine, conducted the symposium and presented cases illustrative of the various conditions. X-ray films and electrocardiograms of each case were shown and explained and a general consideration of treatment followed. The use of digitalis, and mercurial diuretics was explained in detail, as well as the general management of cardiac cases. Dr. C. A. Ravey spoke briefly on antiluetic treatment, and Dr. A. B. Soule, Jr., on the roentgenologic aspects of heart disease. Dr. C. H. Beecher led the general discussion which followed. In closing, Dr. French emphasized the fact that, while very little beyond supportive measures could be done for the advanced cardiac case, the patients with the early and milder lesions should be helped, and greater effort should be turned toward the case of this type of patient.

During the next hour, the Department of Surgery, under the direction of Dr. Lyman Allen, Professor of Surgery, presented a group of unusual surgical cases, and Dr. Allen spoke briefly on abdominal surgical emergencies. Dr. Allen listed the commoner conditions which are ordinarily classed as abdominal emergencies, and commented on some of the characteristic features of each. Among the things emphasized by Dr. Allen were the following: Cathartics, especially castor oil, are dangerous where appendicitis or obstruction is suspected; morphine, since it masks symptoms, should be given with caution if at all; the patient should be taken to the hospital as soon as possible, as the mortality rises with every hour's delay; a carefully made, though brief history of the attack should be made, noting the signs and symptoms in order of their occurrence, and this should be sent to the hospital with the patient, together with a history of previous abdominal symptoms known to the family physician.

Dr. G. M. Sabin next presented three cases of fracture of the vertebral bodies, two with compression fractures of the lumbar vertebrae, and one with fracture of the twelfth dorsal vertebra and complete lateral dislocation, all with complete recovery of sensation and motor control. X-ray films, lantern slides and the patients themselves, were shown.

Dr. W. T. Rees and Dr. Lyman Allen then showed a man who had had a cholecystostomy in 1927, at which time the gall-bladder walls were greatly

thickened and gangrenous and the gall-bladder itself contained purulent fluid and thirty-one stones; in 1931, due to recurring jaundice, the gall-bladder was again explored by Dr. Rees, who found the cystic and hepatic ducts and remains of the gall-bladder distended; being unable to reach the common duct on account of adhesions, a cholecystogastrostomy was done, followed by relief of jaundice. On February 8, 1933, on account of further recurrence of jaundice, a third operation had been done by Dr. Allen who found that the stoma between the gall-bladder and stomach had closed. A new and larger opening between the gall-bladder and stomach was made, and the jaundice again disappeared.

Dr. Rees then showed a woman who had received a lacerated and contused wound of the right arm from an automobile accident in 1932, with complete severance of the brachial artery, the median and ulnar nerves and biceps muscle. The operations for nerve suture and general repair were described and the patient demonstrated good return in function, now eighteen months after the accident.

Dr. Lyman Allen presented a case of a girl who had developed a gas bacillus infection following an appendectomy, and had been treated by serum therapy and wide incision. He also presented a case of extensive depressed fracture of the skull with hemiplegia, treated surgically, explaining the procedures followed. The hemiplegia had disappeared, but paralysis of the external rectus of the right eye persisted and was to be corrected by operation on the muscle.

Dr. B. D. Adams next presented a case of fistula of the nose following basal cell cancer of a number of years' duration, which was repaired by use of a line-attached frontal flap by three stages. He also presented a case of plastic restoration of the lower lip, following resection of an epithelioma of the lip. The operations done were briefly described.

The Obstetrics Department, as represented by Drs. O. N. Eastman and H. A. Durfee, demonstrated vaginal operative delivery technique, using the anatomic manikin and an embalmed fetus. Podalic version by Potter's method and the Scanzoni operation were shown by Dr. Eastman. Dr. Durfee demonstrated simple low and mid-forceps delivery and the use of the Piper forceps for the after-coming head. The relative merits of solid and fenestrated blades as well as the Kielland forceps were discussed and the advantages of true axis traction were emphasized. A brief discussion of resuscitation methods followed, stress being laid on the use of the mucus aspirator and carbon dioxide-oxygen mixtures.

The meeting closed on Saturday, May 5, at 1 P.M.

VERMONT DEPARTMENT OF PUBLIC HEALTH

April, 1934

The incidence of communicable disease for the month of April was as follows:

Chicken pox 153, diphtheria 1, measles 379, mumps 56, scarlet fever 37, typhoid fever 37, whooping cough 144 and tuberculosis 12.

During April, the Laboratory of Hygiene made a total of 1,542 examinations, classified in the following manner:

Examinations	for diphtheria bacilli	86
"	" Widal reaction of typhoid fever	33
"	" undulant fever	26
"	" gonococci in pus	95
"	" tubercle bacilli	234
"	" syphilis	472
"	of water, chemical and bacteriological	71
"	" water, bacteriological	199
"	" milk, market	141
"	" milk, submitted for chemical only	8
"	" milk, submitted for microscopical only	102
"	" foods	1
"	" drugs	1
"	for the courts, autopsies	1
"	" the courts, miscellaneous	5
"	of animal heads for evidence of rabies	1
"	miscellaneous	63
Autopsies	to complete death returns	1

The nurses in the Division of Poliomyelitis After-Care made fifty-six home visits. Two patients were admitted to the Audubon Hospital and one was discharged from this hospital. Two patients were admitted to the Children's Hospital. Eighteen new pieces of apparatus were fitted to patients and sixteen orthopedic corrections were made to shoes. The vocational worker of this division reports sales amounting to $87.69 for the month.

NEW HAMPSHIRE MEDICAL SOCIETY

HOUSE OF DELEGATES

May 14, 15 and 16, 1934

THE House of Delegates convened at the Hotel Carpenter at Manchester, New Hampshire, on Monday evening, May 14, 1934, at seven-thirty o'clock in the evening.

The meeting was called to order by Henry C. Sanders, Jr., Vice-Speaker.

Dr. Sanders then called the roll, the following members being present:

Robert J. Graves, President
Frederic P. Lord, Vice-President
Carleton R. Metcalf, Secretary-Treasurer
Arthur M. Fernald of Hampton
Cleon W. Colby of Exeter
Charles H. Parsons of Concord
Clarence E. Butterfield of Concord
James B. Woodman of Franklin
Osmon H. Hubbard of Keene
Arthur W. Hopkins of West Swanzey
Kenneth Churchill of Lebanon
Leslie Sycamore of Hanover
Charles F. Keeley of Claremont
Henry C. Sanders, Jr. of Claremont.
Roland J. Joyce of Nashua
Byron D. Pease of Greenville
Deering G. Smith of Nashua
George C. Wilkins of Manchester
Richard W. Robinson of Laconia
John R. Perley of Laconia
William J. P. Dye of Wolfeboro
Francis J. C. Dube of Ossipee
George C. Rublee of Rochester
Harry O. Chesley of Dover.

SPEAKER SANDERS: The next business is the appointment of Committees. I will appoint as the Committee on Credentials Dr. James B. Woodman of Franklin, Dr. Kenneth Churchill of Lebanon and Dr. John R. Perley of Laconia; as the Committee on Officers' Reports Dr. Deering G. Smith, Dr. Arthur W. Hopkins and Dr. John R. Perley; as the Committee on Communications and Memorials Dr. C. H. Parsons, Dr. Kenneth Churchill and Dr. George Rublee.

Is the Committee on Credentials ready to report?

DR. WOODMAN: The credentials are in due form and the members are present.

SPEAKER SANDERS: The next order of business is the President's report.

DR. ROBERT J. GRAVES: I suppose every man who has been honored by election to the presidency of this ancient and honorable society has assumed office with the belief that there were many things which he could accomplish during his term for the good of the organization and of the public. I was no exception.

However, the ideas which I had last May for straightening out certain professional tangles in the State and for advancing the interests of this Society in general, miscarried at about the end of the first month, to be supplanted by the mole of legislative wisdom, House Bill 417.

Practically all of us in this Society were neophytes in such matters, but all showed a commendable willingness to coöperate with the State Relief Administration. We almost at once were ready to function, but they were not. It was not until after the turn of the year that the machinery began to click with a reasonable degree of smoothness. Since then the cases have been much better handled, and the chief difficulties have arisen through misconception on the part of a very few of our members of the modus operandi of relief problems. Personally I do not know yet whether Bill 417 taken as a whole and administered in a strict interpretation of its phraseology is good or bad. I am inclined to believe that it is neither, altogether. Its fundamental concept is sound, but no bill so radically departing from former procedure can properly function or be adequately evaluated when the time for setting up the machinery of administration is so short.

With the ever-widening range of social and economic invasions into what were formerly strictly medical domains, a closer knit organization is essential for the preservation of our medical existence. Dr. Chesley ably advocated this last year in his presidential address.

Now the president is in office but one year, and unless he be exceptional or has come up through the ranks of long time service in the House of Delegates and has served on important committees and the like, his term is likely to be nearly over before he has done more than kindle a few feeble fires which are without real effect in warming up the Society as a whole to the vital aspects of this problem.

Not so the Secretary. He is the real, continuing, motivating influence for our salvation.

Few of us realize the amount of devoted energy which Dennis E. Sullivan gave to our Society. This was his avocation; this practically his only thought outside of his personal practice, his family and his church. The importance of choosing wisely in the selection of his successor can hardly be overemphasized.

The time is coming when we cannot afford not to have an adequately paid full-time secretary, who will be constantly on the job, a triad of executive ability, political leadership and molder of public opinion.

The matter of free clinics must have our ear-

nest consideration. A recent compilation by State departments reveals that there are over 11,000 school children showing one or more corrective defects. These are all below high-school age, in families actually unable to provide proper medical care for their children, and for these some way must be found to put them in the best possible condition for making a living and doing their work in the world.

However, year after year since 1919, the already existing agencies have obtained an ever-increasing number of corrections. Confirming our belief that there is no necessity for setting up new procedures for handling this situation, I wish to quote from a letter written by an official of the State Board of Education:

"Since the beginning of the school health program in 1919 by the State Board of Education, the development of the work has gone steadily forward. The success of the program is in no small way due to the wholehearted coöperation and support of the medical and dental professions. In practically every school district of the State where school nurses are employed, there exist pleasant and friendly relationships. Through these relationships advice and care are made possible for many children. We would regret exceedingly to see a program which has been firmly established interrupted or retarded at this time. Individual physicians, including specialists in various lines, have contributed generously of their skill and service, frequently with little or no remuneration. We have appreciated, too, their confidence and interest.

At the present time there are employed in the State forty-one (41) full-time school nurses whose time is divided between one or more school districts. Six (6) of these nurses serve Manchester. A single nurse frequently serves from five to ten districts. There are thirty-five (35) public health nurses whose duties include school nursing, and there are fifteen (15) part time school nurses and about seventy (70) school physicians."

These are but a few of the problems which have come up this year. They grow more complex month by month.

Report of the Secretary-Treasurer

To the Members of the House of Delegates of the New Hampshire Medical Society: The following report for the year 1933 is respectfully submitted:

Total Membership December 31, 1933

PAID MEMBERSHIP

Belknap County	29	
Carroll County	11	
Cheshire County	27	
Coos County	32	
Grafton County	49	
Hillsborough County	129	
Merrimack County	53	
Rockingham County	47	
Strafford County	30	
Sullivan County	19	
Not in County Society	8	
		434

UNPAID MEMBERSHIP

Affiliate Members	17	
Not in good standing	21	
Honorary Members	14	52
Total Membership		486

The total membership at the end of 1932 was 487.

FINANCIAL STATEMENT

Receipts

Jan. 1, 1933. Balance forward	$ 142.24
Rockingham County	282.00
Carroll County	60.00
Belknap County	180.00
Strafford County	174.00
Merrimack County	306.00
Hillsborough County	780.00
Sullivan County	114.00
Grafton County	306.00
Coos County	198.00
Cheshire County	158.00
Members not in County Societies	56.00
Net receipts annual meeting	338.86
Balance Women's Auxiliary	21.00
Miscellaneous receipts	45.16
	$3161.26

Expenditures

Postage and stamped envelopes	43.82
Evans Printing Co., Ledger cards	1.80
May, The Printer, 500 Envelopes	1.50
Bridge & Byron, 700 programs	34.00
E. C. Eastman, 200 clasp envelopes	2.00
D. E. Sullivan, Salary	500.00
George C. Wilkins, Com. Control of Cancer	50.00
John P. Bowler	3.00
W. P. Bowers, Sec. N. E. M. C. Pro-rate expense	53.08
Pray Prize essay expense	5.75
Robbins Co., 3 gold medals	39.24
N. H. Savings Bank Benevolence Fund	238.50
Dr. Alfred T. Bazin Guest	40.36
Annual Meeting Guests	14.00
Auto Hire, John Hackett, Dr. Cary Boston to Manchester	15.00
Mechanics Bank Taxes	.74
Telephone	11.60
Madelaine A. May, Stenographer	77.89
Concord Business College Stenographer	4.20
Mrs. Ezra Jones, Women's Auxiliary State Approp'n	100.00
Trustees	800.00
Eagle Hotel, Dinner County Sec. Conference	14.75
N. E. Journal Subscription	516.64
N. E. Journal Reprints	20.30
Annual Transactions	357.89
	$2946.06
Jan. 1, 1934. Balance in check book	209.20
	$3155.26
Dues, Dr. Tarbell. Credited 12/26/33. Deposited 2/13/34	6.00
	$3161.26

Dennis E. Sullivan, for the past twenty-eight years Secretary of the New Hampshire Medical Society, died on January 19, 1934. His work in behalf of our Society throughout this long period was painstaking and intelligent, his duties so manifold that they demanded continuous and aggressive effort. This is a fact, gentlemen, not fancy; reality, not euphemism. Dr. Sullivan delegated little; he was so constituted that he preferred to do things himself. Though few realize it, he was literally on the job day in and day out. Our Society is greatly indebted, then, to Dr. Sullivan for this faithful, untiring service.

We should record, also, with sincere regret, the death of two other officers of this Society during the past year:

Eugene B. Eastman, Portsmouth
William H. Leith, Lancaster.

At this annual meeting we are adding two names to the rôle of those who have been members for a continuous period of fifty years:

Leonard Jarvis, Claremont
George E. Leete, Concord.

Each of these men will receive a gold medal, suitably engraved, at the general meeting on Tuesday afternoon.

At the same time, the following New Hampshire physicians who have completed fifty years in practice will receive a cordial greeting from the Society:

Walter R. Sanders, Derry Village
Roscoe G. Blanchard, Dover
Charles W. Adams, Franklin
Frank A. Smith, Lebanon
Frank S. Lovering, Moultonboro
Ezra C. Chase, Plymouth
George W. Nutter, Salmon Falls.

I have wondered if a gold medal is the most suitable gift for a half-century member. Most medals repose in top bureau drawers. Would it be more appropriate to award a silver loving cup, suitably engraved, which could be displayed on the mantelpiece?

Men who are eligible this year to become affiliate members are as follows:

Albert S. Dolloff, New Hampton
Frederick L. Hawkins, Meredith
Joseph J. Cobb, Berlin
Edward E. Twombly, Colebrook
Henry M. Wiggin, Whitefield
N. F. Cheever, Greenfield
A. W. Petit, Manchester
B. G. Moran, Nashua.

President Graves appointed James J. Powers, Manchester, Anniversary Chairman, and David W. Parker a member of the New England Medical Council with term expiring in 1936.

The President also appointed Carleton R. Metcalf, Concord, as Secretary-Treasurer pro tem to carry on the duties of the late Dr. Sullivan until a Secretary-Treasurer is duly elected at this meeting.

The President invited the County Secretaries to Concord last Fall for the usual conference. Luncheon was served at the Eagle Hotel and a lengthy discussion ensued in regard to the State Welfare work, particularly in its relations to the doctors of the State. Miss Patch, Supervisor of the Welfare work, was present.

In a communication from the State Librarian last year an offer was made to coöperate with us in reorganizing and rejuvenating the medical books in the State Library. Of recent years the collection has consisted largely of obsolete textbooks which are practically never read.

Charles H. Parsons, Concord, was asked to decide, after conference with the State Librarian, what action had better be taken in this matter. Doctor Parsons is here to-night and, when the Speaker so elects, will read you his report.

I have in my home in Concord the records and annual reports of the State Society dating back nearly one hundred years. The reports in particular, are of value. They reposed for many years in Doctor Sullivan's office, but it seems to me that they might well be housed in the State Library or in the Library of the New Hampshire Historical Society, unless one or both of these organizations already have a complete file.

Robert O. Blood, Concord, has also been invited to read a report to the House of Delegates. At the request of the New England Obstetrical and Gynecological Society, Doctor Blood has considered the formation of a Committee within our group, similar to the Committee on Cancer, to consider the improvement within the State of these two special lines of medicine. The New England Society feels that the several States will tend more and more to regulate and socialize the care of women and children unless the doctors bestir themselves.

In this connection, one thinks of crippled children. The State Board of Education, through its school nurses, is searching out these unfortunate waifs and making arrangements for their hospital care. Is the ground being thoroughly covered? Are there still, in the State, bedridden children who, under proper treatment, could become ambulatory? Should our Society definitely coöperate in this work and if so, how?

I have been somewhat disturbed by the inactivity of some of the units of the Women's Auxiliary to the New Hampshire Medical Society. I believe that the Women's Auxiliary is a worth-while organization, that it should be nourished and encouraged. I know of one County Society that is ready this year to contribute $25.00 to our Benevolence Fund if we wish it. This same County Society is also planning to award a cash prize annually to the outstanding nurse in the graduating class of each of the hospitals in this particular county; but such enthusiasm is not universal.

If it is to thrive and prosper, the Auxiliary needs a definite job. Would it be well to ask the ladies to do something each year for the Benevolence Fund? Is this another chore to pass on to the long-suffering county secretaries?

The Benevolence Fund has now reached the respectable sum of $640.51. For the benefit of newer delegates, may I explain that fifty cents is reserved from the annual dues of each member to create this fund. The income of the fund, at the discretion of the Trustees, the President and the Secretary-Treasurer, may be used to render pecuniary aid to needy members who are ill, disabled or aged, or to needy widows and children of deceased members.

A few of the County Societies seem to have difficulty in getting suitable speakers for their meetings. Would it be feasible to establish a lecture bureau to minimize this difficulty, with the lecturers chosen from our own members?

The State Legislature sits next year, and, in the ordinary course of events, numerous bills of medical concern will be presented. There have been instances in the past where Dr. Sullivan has been the only member of the New Hampshire Medical Society to appear and to speak at an important hearing. This is wrong. There should be a small group of our officers or of our wiser colleagues who would be ready to attend these hearings in case of need.

In May, 1933, the House of Delegates voted that "The Standing Committee on Amendments to the

Constitution and By-Laws be authorized to prepare a model Constitution and By-Laws for County Societies."

This new Constitution and By-Laws has already been placed in the hands of the Committee on Officers' Reports of which Deering G. Smith, Nashua, is Chairman.

A booklet containing the Constitution and By-Laws of our State Society was last published in 1927. Since then various changes in the by-laws have been made and the interpretation of a few has been in question. A suggestion has been made that a new edition of this booklet be published within the next year or two for distribution among the members of our Society.

Since Doctor Sullivan's death, the scientific program for this year has been in the hands of Richard W. Robinson, Laconia, and Frederick P. Scribner, Manchester. They have worked hard, conferred often, and are presenting to you tomorrow and Wednesday a group of speakers who will meet with your entire approval. I am extending to them my heartfelt thanks for relieving me, at this time, of this particular detail which ordinarily falls largely on the shoulders of the Secretary.

To the County Secretaries, also, and to many other members of the Society, I am greatly indebted for the cordial and prompt coöperation that has been given me in undertaking a new, uncharted, and intricate task.

CARLETON R. METCALF,
Secretary-Treasurer.

Reports of Councilors

BELKNAP COUNTY

The Belknap County Medical Society held six meetings during the year, November to April inclusive. The average attendance was higher than usual. The year was unusual from the fact that we were able to secure several papers from the members of the society. The society lost one member by death, Dr. N. W. MacMurphy of Belmont, and gained three new members, Drs. Stewart, LaFrance and Hill.

C. S. ABBOTT,
Councilor.

CARROLL COUNTY

During the past year the Carroll County Medical Society has held three meetings at the Center Ossipee Inn.

We were pleased to have Dr. Graves with us at our August meeting. In December Dr. Gordon Morrison of Boston gave an excellent paper on some common fractures.

At our last meeting in April papers were given by our own members.

CHARLES E. SMITH,
Councilor.

CHESHIRE COUNTY

The Cheshire County Medical Society had a very quiet year in 1933 and there is practically nothing to report to the State Society.

A. A. PRATTE,
Councilor.

COOS COUNTY

The Coos County Medical Society has held two meetings the past year, as usual, one in the Fall, and one in the Spring. These meetings have been well attended and helpful.

All the physicians of the county are enrolled in its membership, but there are a few whom one never sees at a meeting. This is unfortunate for the society, but even more so, for the absent members, as I believe there is much to be gained in these meetings, for every practitioner.

Our programs are made up mostly with the aid of outside speakers. It is regrettable that our own men are so loath to write and read papers, notwithstanding the fact that there are no abler men in the profession, than those found here in our northernmost county.

RICHARD E. WILDER,
Councilor.

GRAFTON COUNTY

The Spring meeting was held at the Littleton Hospital and the members were guests of the Hospital Trustees at luncheon, following the meeting. An inspection of the rebuilt hospital was made at this time.

The program was furnished by the Littleton members. There was a good attendance.

The annual meeting was held in Hanover at the Mary Hitchcock Hospital. The usual business was disposed of and the members were luncheon guests of the Hospital and Trustees. The meeting was held in the assembly room of the Dick Hall House where the society was given a most instructive talk on Endocrinology, by Doctor Reginald Fitz of the Harvard Medical School.

A. T. DOWNING,
Councilor.

HILLSBOROUGH COUNTY

The Hillsborough County Medical Society during the last year had the largest membership it has had in many years. We have lost three members by death during this time.

The fall meeting was held at the Hillsborough County Hospital. Clinics were held and cases demonstrated after which, by the courtesy of the County Commissioners, we were served a very fine dinner.

In the afternoon Mr. E. H. Hunter of Hanover outlined the present welfare situation that is being carried out in this state. There was great interest and much discussion over this topic.

There were also papers by Dr. G. C. Wilkins of Manchester and Dr. R. H. Southwick of Boston.

The spring meeting was held at Wilton, N. H.; and after business was transacted Dr. Norman W. Crisp of Nashua gave a paper on Surgical Lesions of the Stomach and Duodenum and Dr. James P. O'Hare of Boston gave a talk on Uremia and Hypertensive Encephalopathy.

Luncheon was served with the compliments of David Whiting & Sons Inc., and the entire meeting, including the Women's Auxiliary, was given a trip through the Hampshire Hills Dairy, where the production of certified milk was shown in the ultra-modern milking parlor. Dr. Richard S. Eustis of Boston gave a talk on Vitamin Milks and the different methods of production.

This year the County has had a relations committee to act as an intermediary between the welfare activities and the physician. There have been many controversies and problems brought to its attention which were satisfactorily handled through this committee.

CLARENCE O. COBURN,
Councilor.

MERRIMACK COUNTY

The Center District & Merrimack County Medical Society has held four meetings during the past year, all at the Eagle Hotel, Concord, N. H.

July 19, 1933. The general subject of Medical Care of the County Poor was discussed by Dr. R. J. Graves, President of the New Hampshire Medical Society, and by Dr. D. E. Sullivan.

October 5, 1933, at an open meeting the subject of medical relief was discussed. Dr. Graves presented the subject of thyroidectomy for relief of angina.

At the annual meeting January 5, 1934, Dr. T. P. Burroughs, City Health Officer, read an interesting paper on the general subject of public health.

Officers elected:

President, Dr. W. C. Rowe, Concord.

Vice-President, Dr. J. B. Woodman, Franklin.

Secretary-Treasurer, Dr. C. H. Parsons, Concord.

On April 4, 1934 Dr. R. E. Miller of Hanover gave an address on Cancer.

The Society has admitted to membership during the year, Dr. Norris of New London, Dr. McCarthy of Concord, and Dr. LeBlanc of Suncook.

We note with special regret the death of Dr. D. E. Sullivan.

H. H. AMSDEN,
Councilor.

ROCKINGHAM COUNTY

During the past year two meetings were held. The annual meeting was in October at the County Building, Exeter. Exceptionally valuable and interesting papers were presented by Doctors Herbert L. Taylor, L. R. Hazzard, and E. A. Vickery all of Portsmouth and Dr. D. E. Higgins of Epping.

Our late and lamented Secretary, Dr. D. E. Sullivan, was present and shared in the discussion of the papers. Possibly he flattered us a bit when he said that it was one of the best County meetings he ever attended; that all the papers were by local members and all worthy of appearance in the state program.

The Spring meeting was held at the Portsmouth Hospital in April. After some business and presentation of dry clinic cases by members, Dr. Chester F. McGill demonstrated in rabbits the Aschheim-Zondek Reaction. It was interesting, convincing and novel to most of us.

At 11:00 A.M. Dr. Edward DeLos Churchill of the Massachusetts General Hospital read a wonderful paper on Thoracic Surgery and kindly answered many questions relating to modern methods. A generous luncheon was served at the hospital.

In the afternoon Dr. Robert L. DeNormandie delivered an address: "Obstetrics in Retrospect." To us older members it was like reviewing the scenes and experiences of childhood. To the younger, probably much seemed strange if not improbable. Yet in that period most patients, both mother and baby, survived.

Since our last report death has claimed two active, strong members: our President, Dr. Eugene B. Eastman, Portsmouth and Dr. Joseph C. Tappan, Derry.

The addition of one new member makes our net loss one.

ABRAM W. MITCHELL,
Councilor.

STRAFFORD COUNTY

Three meetings of the Strafford County Medical Society were held during the year 1933. The first meeting was on July 25 at the American House, Dover, N. H., at which time there was a very active general discussion relative to the attitude of the members of this society toward the welfare work and it was decided to lay the matter on the table for the present.

On August 4 the above meeting was continued with Dr. Robert Graves, state president, as well as the late Dr. Sullivan, secretary. Once again this matter of the fees and coöperation with the state relative to the poor, etc., was carefully gone into and it was finally voted after a lengthy discussion to accept the scale of fees other societies had taken.

On November 9 the annual meeting was held at the Gray Tower Motor Inn at Rochester, N. H. Following the election of officers, Dr. Lewis M. Hurxthal (Boston) gave a very interesting paper on the "Mechanism of the Heart Beat."

This was followed by a general discussion. Three new members were voted into the Strafford County Medical Society, Dr. W. E. Precourt, Somersworth; Dr. Prince, Durham; and Dr. W. B. Rahmanop, Dover.

We are sorry to report the death of Dr. A. E. Grant of Durham on December 8 from mesenteric thrombosis.

J. A. HUNTER,
Councilor.

SULLIVAN COUNTY

The Sullivan County Medical Society has enjoyed its usual amount of activity during the past year. At a meeting in the summer, held in Claremont, Dr. Graves, President of the State Society, and Dr. Sullivan, Secretary, were present and outlined the work to be undertaken by the state welfare. The question of a fee table for the welfare cases was discussed and it was voted to accept the table adopted by the State Society.

The annual meeting was held in Claremont in December, at which time a paper was read by Dr. Haubrich of Claremont and discussed by various members of the society. The meetings were well attended and much interest was shown in the general proceedings.

EMERY M. FITCH,
Councilor.

SPEAKER SANDERS: Dr. Syvertsen has a report which he would like to make.

DR. SYVERTSEN: During one of the meetings of the Welfare Council held at Concord, it was announced that a fund of $40,000 had been obtained from the Federal Government to serve as a work relief project to employ forty nurses for a year, or the larger part of a year. This fund, and this personnel of nurses, were to be used in making a state-wide survey of remediable physical defects among the children in the State, under high-school age. I was asked to serve on the Committee to supervise the work of this group. Mr. Pringle of the State Board of Education, Dr. Kerr and Mrs. Abbie L. Wilder, the Federal Employment Director, were also members of this Committee. After the appointment of this Committee, and in fact on that very day, we had a meeting and decided that it would be regrettable if a large new agency were set up in the State to spend this $40,000 entirely in the work of making a survey, when, in all probability, all data were available in the records of either the State Board of Health or the State Board of Education.

So, we proceeded, with the assumption that if the data from such a survey could be presented to the authorities in Washington, it might be possible to salvage this fund, for use in actual work.

In proceeding with this assumption, Dr. Dun-

can's office and Mr. Pringle's office were asked to canvass their workers throughout the State and to assemble at Concord the necessary information This survey was partly completed, when Dr. Elliott, from the Children's Bureau in Washington came to Concord to confer with us, and we were able to convince her, at least temporarily, that the survey was proceeding with sufficient success to assume the possibility that it would not be necessary to spend any of this money in acquiring data.

When the survey was finally completed, a member of the Committee took it to Washington and secured the promise that we might use the $40,000 in corrective work.

It was felt by the Committee that it would be extremely undesirable, in view of the already existing agencies, to establish any new group for the purpose of doing something which could be possibly done by organizations in existence. With that idea in mind, we decided to analyze our data. We found that in the State there were some 11,813 children reported as afflicted with remediable defects that might be corrected.

It has been the feeling of the Committee that there are, in the state, agencies which could take care of these defects with the funds which have been available in the past and are still available, and if it is actually merely a matter of funds, it is possible that by subsidy, or by subsidizing these agencies with this money, the program can be continued to a satisfactory conclusion.

We expect that if we can have the wholehearted coöperation and encouragement of the State Medical and Dental Societies, with this money a large forward step can be made toward correcting this problem.

As Chairman of this Committee, I would like to ask the New Hampshire Medical Society to give us this whole-hearted coöperation and encouragement, because all of this work should spring from and be initiated in the State Society, and, if we are to obviate the entrance into the field of large lay groups that are equally concerned with this matter, we must make some sort of a movement in the right direction.

I would like to ask some one if he will make a motion, that a Committee of three be appointed by the President, to be known as the Child Health Committee of the New Hampshire Medical Society, and, further, that a similar committee be established in each county to function in a respective manner for the county.

DR. ROBERT J. GRAVES: I would like to make the motion which Dr. Syvertsen has suggested.

DR. FREDERIC P. LORD: I would like to second the motion, and to express my own feeling that it should be a separate committee of three.

SPEAKER SANDERS: It has been moved and seconded that a Committee of three be appointed by the President, to be known as the Child Health Committee of the New Hampshire Medical Society, which shall act for the society in the emergency matters concerning child health, and which shall serve as the beginning toward coöperation with and coördination of all agencies within and without the State, which are concerned with Child Health, and, further, that a similar committee be established in each county to function in a respective manner for the counties. This committee shall serve for one year. The motion was carried.

Report on State Library

DR. C. H. PARSONS: The books and periodicals in the New Hampshire State Library were carefully checked over, with the coöperation of Miss Thelma Brackett, the State Librarian. The books were found to consist of two groups; those of some slight historical interest, and those which were entirely worthless for any purpose, the latter being in the majority. It was found that the books had been borrowed very infrequently, that they had been consulted in the Library very infrequently. The periodicals were not of a great deal of practical value.

With the coöperation of Miss Brackett, many of the textbooks were discarded. The majority of the periodicals in the files were discarded. The following journals were subscribed to:

American Journal of Diseases of Children
American Journal of Psychiatry
American Journal of Medical Sciences
Archives of Internal Medicine
New England Journal of Medicine.

These were subscribed to because they were the journals that were most frequently requested by the very few physicians who came into the Library.

It was decided that it was inadvisable to purchase any medical textbooks.

SPEAKER SANDERS: I will now call for the various reports. I believe that Dr. Metcalf has two reports to give us.

Report of the Committee on Scientific Work

Your Committee met several times to arrange the program for the annual meeting, the earlier meetings being held before Dr. Sullivan's death. The Committee has conferred also with the President of the Society, with County Secretaries, and with individual members.

The Committee would like to learn of suitable original papers which are read at meetings of the County Societies. Many of them could be re-read with profit at the annual meeting of the State Society. In an effort to unearth new material, a postal card was recently sent to each member of the Society suggesting that he or she prepare a paper for 1935 or 1936.

The program for this year's annual meeting has been printed and distributed to the entire membership as usual.

RICHARD W. ROBINSON,
FREDERICK P. SCRIBNER,
CARLETON R. METCALF.

Report of the Committee on Publications

The contract with the *New England Journal of Medicine* has been continued during the past year. The *Journal* gives our Society a definite number of pages in its first edition each month, and prints our Annual Transactions. Each paid-up member of our Society receives one copy of the *Journal* a month.

We are anxious to have the county societies send, for publication in the *Journal*, papers read at their meetings, news items, case reports and similar material.

Secretaries of the several County Societies are urged to coöperate in this matter.

BENJAMIN P. BURPEE,
LAWRENCE R. HAZZARD,
CARLETON R. METCALF.

Report of the Committee on Constitution and By-Laws

In May, 1933, the House of Delegates voted that "The Standing Committee on Amendments to the Constitution and By-Laws be authorized to prepare a model Constitution and By-Laws for County Societies."

In accordance with this vote, the Committee has prepared a Constitution and By-Laws (herewith submitted) based on the model prepared by the Committee of the American Medical Association, but with several important modifications. It is nearly identical with the present Constitution and By-Laws of the Hillsborough County Medical Society, which were adopted in 1929.

HENRY O. SMITH,
THOMAS W. LUCE,
FRED E. CLOW.

SPEAKER SANDERS: Will Dr. Henry O. Smith please be kind enough to summarize the report.

DR. HENRY O. SMITH: The model Constitution, adopted by the American Medical Association, formed the basis of the Constitution and By-Laws adopted, but with quite a few modifications. With reference to business matters, there were several changes looking to a more simple method of doing business. For instance, in the model constitution, as recommended by the American Medical Association, the Treasurer was allowed to pay bills, only on the order of the President, countersigned by the Secretary, and on various other matters, it seemed to us that unnecessary verbiage and unnecessary work were entailed.

The chief addition that your Committee embodied was this; that the delegates to this House should be elected for a two-year term. I would like to say that this was the one change that Dr. Sullivan was very anxious to see incorporated in our by-laws, because that would seem to insure the presence, in our House, of at least fifty per cent of the members with experience.

SPEAKER SANDERS: This report is automatically referred to the Committee on Officers' Reports.

Dr. Parker now has a report to make.

DR. DAVID W. PARKER: It has always been my judgment that the New England Medical Council has been, and is, of definite value to the New Hampshire Medical Society, and to the medical societies of the several States of New England, because this organization furnishes the opportunity for the representatives of these several societies to discuss and act upon problems which are of equal interest to the medical profession of all the States. Not infrequently, these problems are of paramount importance, and can be successfully solved only by concerted action of the representatives of these several State societies. It is my feeling that the Council has justified its existence by its action on the prevention of malpractice suits, and its clarification of the problem of reciprocity between States.

There has been a feeling on the part of several of the State delegations that the assessments for expenses should be based on the membership of the several State societies. The organization of this body is analogous to that of the Senate: that is, equal representation from each State, regardless of the membership of the State society. On that basis it has seemed to me fair and equitable that the expense of the organization should be borne equally by the several States, especially as these expenses are not heavy.

It would seem to me that the continuance of this organization might be of distinct future value to our Society.

DR. FREDERIC P. LORD: Mr. Speaker, I would like to ask Dr. Parker if the New England Medical Council is defunct and will not meet unless something is done?

DR. PARKER: From this letter of Dr. Bowers, I assume that is a fact, unless the State Societies do express a desire to have it continued. My reaction was that if we passed favorably on that, and forwarded our decision to Dr. Bowers, it might be brought up before the other State Societies and they might take action on it, that is, to perpetuate it, on this plan.

DR. LORD: What is the extent of the contribution?

DR. PARKER: Each society appropriates one hundred dollars, but I can't tell you what the actual expense is.

SPEAKER SANDERS: This report will be automatically referred to the Committee on Reports.

I will now call upon Dr. Smith for further reports at this time.

DR. DEERING G. SMITH: The special committee on Medical Liability Insurance has had the subject under consideration for two years. We have sought advice from representatives of insurance companies, in conference and by mail; with officers and members of your society; as well as from a similar committee in Vermont. Our report falls into two sections:

I. Advisory Committee on Medical Jurisprudence

Your committee is of the opinion that the name and definition of the duties of the Committee on Medical Jurisprudence could, with advantage to us all, be changed. The scope of activity of the committee should be broadened to include friendly arbitration between physician and physician, as well as between patient and physician. It should include arbitration between patient and physician before the stage of legal action begins. The name should be changed so that it will indicate these improvements.

Your committee believes that procedures within the committee, and the conduct of hearings, could be modified with the result that any accused man would be inclined, more than at present, to bring his troubles promptly and candidly to a group who will listen sympathetically, without outside aid or influence. The latter suggestion can be adopted by the group without legislation. The committee on jurisprudence should give aid and assistance to men insured in any company or association, or who are not insured at all. The benefits of the committee should be available to our members without exception.

II. The Insurance Group

The group of men insured in the company recommended by the society varies in size, but has a tendency to grow smaller. Many factors enter into the cause of this situation: prohibitive expense of any insurance in these days of depleted incomes, the particular company with which we have done business, the attitude of the local agent, past experience and a number of other reasons prevent the growth we had hoped. Nothing can be done as missionary work save in the smaller groups of men, meeting in the county society, to overcome these objections. Many of the men who have left the group attend no society meetings.

Your committee studied the Vermont Plan where each member of the State society is automatically protected in suits, with insurance, purchased by himself, to cover judgments and settlements. It is evidently impossible to establish this plan in our State. Vermont has a homogeneous and coherent membership. Every man is doing his part to lessen the incidence of suits and threatened suits. The plan has been operating for years and a comfortable surplus has been accumulated. Your committee can but express its regret that New Hampshire has not a similar plan. The more closely men are allied in an enterprise of this sort, the keener the individual vigilance, upon which all success must be founded.

Recommendations: 1. We recommend that the name and definition of the Advisory Committee on Medical Jurisprudence be changed, after study by the Committee and the Committee on Constitution and By-Laws.

2. We recommend that since some expense has been incurred but no bills have been rendered, the appropriation of last year (one hundred dollars) be voted again for the purposes of this Committee.

3. We recommend that the Committee be continued for one year.

FRED E. CLOW,
DEERING G. SMITH,
RICHARD ROBINSON.

SPEAKER SANDERS: I will now call for further reports of various committees, the first being the Committee on Tuberculosis.

Report of the Committee on Tuberculosis

It is in many ways a remarkable fact that after four years of serious economic depression, the tuberculosis death rate should continue its declining trend, for much historical and present-day discussion has stressed the close relation between the tuberculosis death rate and economic and social conditions.

For the year 1920 the tuberculosis death rate was 97 per 100,000 in the State of New Hampshire. In the year 1925 the rate had declined to 66; in 1930 to 53.1 and in 1932 to 44.9—the lowest in the New England States and one of the lowest in all the States of the Union. The figures for 1933 are not as yet available but there is reasonable expectation that the phenomenal reductions will be maintained and added to in 1933.

During the years of normal economic conditions and in periods of economic prosperity, the reductions in the tuberculosis death rate have been ascribed in a greater or lesser degree to the improvement in standards of living for the masses of the people, particularly among the workers in industry. If the all-important factor is improved living conditions, then the past four years of distress should be witnessing increasing morbidity and mortality from tuberculosis. Yet there is no definite evidence to indicate such a tendency. On the other hand, we know that the "development of tuberculosis" is not an overnight matter, that the manifesting of active tuberculosis disease occurs in the great majority of cases only after a long period of combat between the tuberculosis germs and the tissues of the human beings in whom they have become established! How long this period of attrition may be is hard to estimate, but in many cases a matter of months and years. It is easily conceivable that the physical and mental distress suffered by the people in these past four difficult years may yet manifest itself in the years ahead in increased prevalence of and deaths from tuberculosis.

However, we have every reason to feel that the forces for the control of tuberculosis among the people of New Hampshire have been so well organized and coördinated as to take care, not only of the usual tuberculosis load, but also of any accretions resulting from the economic depression. The effect of the work of the last twenty or twenty-five years has been cumulative in character. The people of New Hampshire, through the legislative bodies, have been alert to the necessity for caring for the tuberculous. Philanthropic and public-spirited citizens have given of their means to finance the tuberculosis campaign in the field through the work of the tuberculosis clinics and nurses. Public health agencies of New Hampshire have been active participants in the tuberculosis campaign. The medical profession of the State has been increasingly active and is becoming more and more skilled in the diagnosis and treatment of the disease. Our sanatoria are expanding their facilities and their service in arresting tuberculosis and in restoring patients to working capacity on a large scale. Their annual contribution to the saving of lives is a large one and very tangible. Of recent years, pneumothorax, phrenicectomy, and thoracoplasty are being used as valuable adjuncts to sanatorium treatment in certain types of cases.

Our own sanatorium at Glencliff has employed these additional methods of treatment with promising results.

There is a waiting list for admission to both sanatoria at Glencliff and Pembroke, but the interval between application and admission is not a lengthy

one. In our neighboring State of Massachusetts the waiting period is about four months behind the application for admission in many of the county sanatoria.

The large reduction in tuberculosis deaths during the past fifteen years in the State means that there are fewer advanced cases capable of producing new infections and victims in the community. Fewer infections means fewer active cases in later years. There is thus set up a beneficent circle which serves to protect the community.

It is apparent, however, that any breakdown in the intensive program of tuberculosis control throughout the State would be a tragic circumstance at this time. It is a cause for considerable gratification that the intensive program is to be continued and that the service has the active participation of the physicians of the State.

Respectfully submitted,

R. B. KERR, Manchester,
R. M. DEMING, Glencliff,
A. L. WALLACE, Nashua.

Report of Necrologist

1933

Winfred M. Dowlin, Claremont, N. H. Died April 12, 1933.
Samuel Ferguson, Goffstown, N. H. Died April 24, 1933.
Jane Hoyt-Stevens, Concord. N. H. Died July 1, 1933.
Ella Atherton, Nashua, N. H. Died September 4, 1933.
Eugene B. Eastman, Portsmouth, N. H. Died September 6, 1933.
Walter L. Kelso, Hillsborough, N. H. Died September 13, 1933.
Fred C. Russell, Haverhill, N. H. Died November 4, 1933.
Nelson W. MacMurphy, Belmont, N. H. Died November 23, 1933.
Ernest A. Grant, Durham, N. H. Died December 8, 1933.
George M. Watson, Manchester, N. H. Died December 13, 1933.
Joseph C. Tappan, Derry, N. H. Died December 19 1933.

1934

Walter H. Abbott, Warner, N. H. Died January 10, 1934.
Dennis E. Sullivan, Concord, N. H. Died January 19, 1934.
Cheney I. Cole, Goffstown, N. H. Died February 26, 1934.
William H. Leith, Lancaster, N. H. Died April 3, 1934.
Harry H. Boynton, Lisbon, N. H. Died April 23, 1934.

Report of the Committee on Mental and Social Hygiene

The last decade has witnessed a definite change in the attitude of the profession toward psychiatry. Before then, psychiatric problems were considered by the average medical man to be of an occult nature, smacking of mysticism and metaphysics, with little of scientific background to make them attractive, and the psychiatrist was rated more as a custodian of dements and defectives than as a practitioner of medicine. To-day psychiatry not only ranks as one of the important specialties of medicine, but it is so definitely interwoven with the etiology and treatment of all other forms of disease as to suggest that no all-round medical man can afford to ignore altogether the psychiatric point of view. The personality make-up of a patient suffering from hyperthyroidism, hypertension, angina pectoris or gastro-intestinal disturbances is often of the greatest importance in the etiology. Every urologist now knows that impotence is frequently not of organic origin and that the pediatrician certainly needs some help or understanding in dealing with the behavior problems of his children. For these reasons, medical schools are devoting a great deal more time to neuropsychiatry and many are requiring first-hand acquaintance with a certain number of such cases before graduation.

The general practitioner, however, as a rule, has taken little advantage of the recent advances in psychiatric research and treatment, and to him the state hospital oftentimes still remains just an insane asylum.

The clinical facilities of the New Hampshire State Hospital are open to the medical profession of our state and the general practitioner is invited to visit the hospital and make the rounds with the members of the hospital staff. Such visits would act as a stimulating influence on the hospital staff, and at the same time would serve to acquaint the visitor with modern methods of treatment and care in mental hospitals.

In the past five years the daily average of our State Hospital has increased 235. This is largely due to the fact that many patients with only slight mental damage are now being sent to the hospital. Whether the burden of caring for many of this type belongs upon the hospital is open to question. During the past year twenty-eight patients were considered to have no psychosis.

In several instances, committing physicians have failed to carry out the commitment procedure required by law. In a few cases the patient at the time of commitment was not seen at all by one of the physicians, and in two instances during the past year, law-suits have been instituted on the grounds of illegal commitment.

Every case that now leaves the hospital is discharged on probation, and is returnable at any time within six months without a new commitment. The law should be changed, lengthening the parole period to one year.

In order to treat successfully mental disorders, early diagnosis is important, and to prevent mental disease, the correction of faulty mental trends must be recognized in the child or adolescent.

Mental hygiene clinics for the prevention and treatment of incipient cases are now being established at strategic points of the state, but these cannot be established and maintained without sufficient funds being appropriated to support them.

The establishment of a children's ward at the State Hospital, devoted primarily to the study of neuropsychiatric conditions in children is an outstanding need in the mental hygiene program of the state. In order that such a ward may function successfully, the coöperation of the medical profession is required.

Sterilizations are still being done at the State Hospital and State School as a contribution to the prevention program.

CHARLES H. DOLLOFF,
For the Committee.

SPEAKER SANDERS: Is there any new business to come before the meeting?

Report of the Committee on Public Relations, Public Policy and Legislation

The Committee on Public Relations, Public Policy and Legislation of the New Hampshire Medical Society has held no meetings, for we felt that for

any activities before the General Court at its next meeting, a concerted program and definite action should be taken with the elected members of the General Court, so that when these different projects will be brought to their attention, we would have friends to deal with, rather than coming into General Court as strangers.

SAMUEL T. LADD,
Chairman of the Committee.

SPEAKER SANDERS: At this time, I will call upon Dr. George C. Wilkins to give the report of the Committee on Control of Cancer.

Report of the Committee on Control of Cancer

During the past year your committee has distributed less literature to the medical profession and nurses, because of the withdrawal of free distribution by the American Society for the Control of Cancer. This Society will continue to furnish pamphlets at the request of the committee, or at the request of any physician, but owing to the necessity for retrenchment it has been obliged to apply what amounts to a cost charge when pamphlets are furnished. Your committee has limited its distribution to two letter sheets containing short but pointed observations on cancer diagnosis and care. We feel that distribution to the medical profession of pertinent information in a short, easily read form is an admirable way to disseminate cancer information. Whether this gratuitous information is appreciated or even wanted by the physicians of the State, we have no way of knowing. Only one comment has been received during the past year by any member of the committee from any member of the medical society.

Your committee was twice invited by Governor Winant to conferences with the State Cancer Commission and was able to offer helpful suggestions in the formation of the various cancer clinics which have been sponsored by the commission through the State Board of Health. We believe that these ten clinics in the State will become the nucleus of a group of men who are honestly interested in early cancer diagnosis and early treatment. We believe these groups, consisting of members of our society, will have an important part in educating both the laity and the physicians, in developing a proper attitude toward early and correct diagnosis. It should be borne in mind by every member of the Medical Society that these clinics offer assistance to any doctor in the State in helping him to make a diagnosis in suspected cancer. They are equipped to make biopsies, laboratory examinations and x-ray diagnoses.

A year ago your committee recommended that every county society be requested to devote one meeting of the year to a symposium on cancer with special reference to diagnosis and selective methods of treatment. Your committee has no information at hand as to whether this suggestion was accepted by the county societies, but this year we reiterate the importance of such a program and hope the county societies will carry out this recommendation during the ensuing year.

Your committee has not expended the seventy-five dollars ($75.00) appropriated last year as there was an unexpended balance from the previous year which has been available and which is now exhausted. The committee requests an appropriation of fifty dollars ($50.00) for the following year.

GEORGE C. WILKINS,
GEORGE F. DWINELL,
HOWARD N. KINGSFORD.

SPEAKER SANDERS: Is there any new business to come before the meeting?

DR. D. G. SMITH: Due to the fact that no provision has been made for remitting the dues of the members of our societies who are totally disabled before they reach the age of sixty-five (65), the Hillsborough County Medical Society on April 10, 1934 voted:

1. That our delegates to the New Hampshire Medical Society be instructed to propose the following amendment to Chapter 1, Section 5 of the By-Laws: insert "and" in place of the comma after "years"; insert "either" after the first "is" in line two; insert "or totally disabled" after "age"; strike out "or who is an honorary member of his component society in an equivalent manner whereby he is relieved from the payment of dues," so that this section will read "Any physician who has been a member of this society for a continuous term of fifteen years, and who is either not less than sixty-five years of age or totally disabled, on the request of his county society may be made an affiliate member by a majority vote of the House of Delegates. Affiliate members shall be privileged to participate in the meetings of this Society but shall not be required to pay dues."

2. That a similar amendment to our by-laws be proposed.

Accordingly, Mr. Speaker, I propose this amendment to the State Constitution and By-Laws.

SPEAKER SANDERS: This will be referred to the Committee on Constitution and By-Laws.

Is there any further new business to come before the House of Delegates?

DR. GRAVES: The complexity of the problems which have arisen makes me believe that the House of Delegates should authorize the appointment of a committee to have a certain amount of authority in dealing with the State Welfare Administrative Board Officials.

DR. LORD: In pursuance of Dr. Graves' idea, I would like to make this motion, that the Speaker of the House appoint three members of this Society to serve for one year, as a Committee on State Medical Relief, whose function shall be to act with power for the New Hampshire Medical Society on matters concerning State Medical Relief.

This motion was seconded by Dr. Wilkins.

Upon vote, Dr. Lord's motion was unanimously passed.

DR. DEERING G. SMITH: Mr. Speaker, because of the conflict in the By-Laws of the State Society, where, in Section 5, it says, "The Trustees shall be the custodians of all funds belong-

ing to the society," and where, in Section 1, Chapter II of the By-Laws, it says that the "control, investing power (and so on) of the funds of the Benevolent Fund shall be in the hands of the Trustees, the President and Secretary-Treasurer", I propose the following amendment to Section 1, Chapter XI of the By-Laws; that the words "control, investing power, and" be stricken out of the second sentence, so that it will read, "The distribution of the income shall be vested in a Committee whose members shall consist of the Trustees of the Society, the President and the Secretary-Treasurer". Now, all that means is that the Benevolent Fund shall be under the control of the Trustees, as are all other funds of the Society.

SPEAKER SANDERS: This will be referred to the Committee on Constitution and By-Laws.

DR. SMITH: I wish to give a partial report of the Committee on Officers' Reports.

On the Report of the Secretary-Treasurer, we wish to commend Dr. Metcalf for the able manner in which he has carried on the work of Secretary-Treasurer since the regrettable death of Dr. Sullivan. We recommend the acceptance of this report and its incorporation into the Transactions of this Society.

We desire to call particular attention to the reference made to Dr. Sullivan.

We recommend that the old records and annual reports of the society be housed in either the State Library or in the Library of the New Hampshire Historical Society; the choice to be made by the President and Secretary.

We do not believe it to be feasible at this time to establish a lecture bureau.

We recommend that the Constitution and By-Laws of this Society be published in booklet form, as soon as possible.

On the Report of the Committee on Amendments to the Constitution and By-Laws, we recommend the acceptance of this report and its incorporation into the Transactions of this Society.

We believe that each county society should adopt the model constitution and by-laws recommended by this Committee. We urge that each county society elect its delegates for a two-year term, and that at least one delegate be elected each year. We recommend that the State Secretary send a copy of the above model Constitution to each county secretary.

On the Report of the Committee on Mental and Social Hygiene, we recommend the acceptance of this report and its incorporation into the Transactions of this Society.

We recommend that the suggestions relating to the length of the parole of mental patients, clinics and children's ward be referred to the Committee on Public Relations, Public Policy and Legislation.

On the Report of the Committee on Scientific Work, we recommend the acceptance of this report and its incorporation into the Transactions of this Society.

We recommend that commendation be given to the members of this committee for the excellent program that they have prepared, and, for the efforts that they are making to have original papers presented by members of our Society.

On the following reports, Report of the Committee on Publications, Report of the Necrologist, Report of Dr. Parsons, relative to the State Library, Report of the Committee on Tuberculosis, Report of the Committee on Public Relations, Public Policy and Legislation, and Report of the Committee on Medical Liability Insurance, we recommend the acceptance of the reports and the incorporation into the Transactions of this Society.

We further recommend that the name of the Advisory Committee on Jurisprudence be changed to the Committee on Conciliation, and that the Chapter IX of the By-Laws be re-written to conform with the ideas embodied in Section I of this report.

On the Report of the Committee on the Control of Cancer, we recommend the acceptance of this report and its incorporation into the Transactions of this Society.

We also recommend the continuance of this work and the appropriation of Fifty Dollars ($50.00) asked for by the Committee.

On the Report of the New England Medical Council, we recommend the acceptance of this report and its incorporation into the Transactions of this Society.

Action on this matter has already been taken by the House of Delegates.

On the President's Report, we recommend the acceptance of this report and its incorporation into the Transactions of this Society.

We wish to thank Dr. Graves for the tremendous amount of energy and time that he has spent in representing us in our relations with the Relief Administration.

We commend to the earnest consideration of the members of the Society the various subjects so ably discussed by the doctor in his report.

SPEAKER SANDERS: You have heard a partial report of the Committee on Officers' Reports. Is there any motion regarding this partial report?

DR. WILKINS: Mr. Speaker, it appears that in that report there are no controversial subjects, and, in view of that fact, it seems to me unnecessary to vote on each recommendation separately.

I, therefore, move you, Mr. Speaker, that all of the recommendations be accepted and adopted.

This motion was seconded and was carried.

SPEAKER SANDERS: Has anybody anything to say about the New England Medical Council?

DR. WILKINS: I don't want to take up all the time, but I really feel that the New England Medical Council is an important institution, and we perhaps, as New Hampshire members of the profession, have a peculiar interest in it, because we were the ones who suggested this change and this contact with the other medical societies of the six New England states. I have sat in at a good many of the meetings, and I honestly believe that the Council accomplished something for the good of the medical profession of New Hampshire; perhaps not so much as we would hope, but I do believe that we ought not to allow it to die unless it dies with the

active coöperation of all the societies, too. I would move you that this House of Delegates should indicate how they feel about it, and then the committee can act accordingly. I think it is sufficiently important for the members of the House of Delegates to act upon.

SPEAKER SANDERS: Dr. Parker's recommendation is as follows: "I would, therefore, recommend that the New Hampshire Medical Society go on record as favoring the continuance of the New England Medical Council, under its present organization, and that meetings be held at no regular stated intervals, but at the call of the President and the Executive Committee when any problem or problems may arise which, in their judgment, justify the expense of such a meeting, and that the expenses of such meetings be borne equally by the several states."

This motion was seconded and was carried.

DR. ROBINSON: I move you, Mr. Speaker, that we adjourn.

This motion was seconded and was carried.

SPEAKER SANDERS: We will now adjourn until to-morrow morning at eight-thirty o'clock in this room.

Adjourned, at nine-fifty-five o'clock in the evening.

TUESDAY, MAY 15

The House of Delegates convened for its second meeting at the Hotel Carpenter, Manchester, New Hampshire, on Tuesday morning, May 15, 1934, at eight-thirty o'clock.

The meeting was called to order by Dr. Henry C. Sanders, Jr., Vice-Speaker.

SPEAKER SANDERS: There are twenty members present, which number constitutes a quorum.

The next business is the reading of the minutes of the last meeting.

DR. WILKINS: I move that the reading of the minutes of the last meeting be omitted.

This motion was seconded and was carried.

SPEAKER SANDERS: The next business is the appointment of a Committee on Nominations. I will appoint on this Committee Dr. Wilkins, Dr. Hubbard, Dr. Chesley, Dr. Woodman and Dr. Perley.

I will also appoint the committee which was to be chosen to act on Medical Relief, the Advisory Committee to the Welfare Department; Dr. Graves, Dr. Bowler and Dr. Clarence O. Coburn.

We have now, I think, some further reports, and at this time, I will call for a report of the Committee on Communications and Memorials, and will ask Dr. Parsons to give this report.

DR. PARSONS: We have a communication from Dr. Chase. It is the understanding of the Committee that gold medals are presented only to physicians who have been members of this Society for fifty years. Dr. Chase has been a member since 1907 only, and it is the opinion of the Committee that Dr. Chase is not eligible for the medal.

A copy of a resolution adopted by the Chicago Medical Society, opposing the exploitation of drugs, remedies and so forth over the radio, was read.

The New Hampshire Medical Society is opposed to the advertising, recommending, or in any way exploiting over the radio any preparations, remedies, medicines or appliances for the treatment of human ailments.

SPEAKER SANDERS: You have heard the report of the Committee on Memorials and Communications. What action shall we take, gentlemen?

DR. WILKINS: Unless some one wishes to take them up serially, I move that the recommendations be adopted.

It was so voted.

SPEAKER SANDERS: I believe the Committee on Officers' Reports has some further reports to make at this time, and I will call upon Dr. D. G. Smith for these reports.

DR. DEERING G. SMITH:

On the report of the Committee on Scientific Work, we recommend the acceptance of this report and the incorporation in the minutes of the Transactions of this Society.

On the Report of the Committee on Medical Liability Insurance, we recommend the acceptance of this report and the incorporation in the minutes.

We further recommend that the name of the Advisory Committee on Jurisprudence be changed to the Committee on Conciliation.

We recommend that Chapter 9 of the By-Laws be re-written in conformity with the ideas embodied in Section 1 of this report.

On the report of the Committee for the Control of Cancer, we recommend the acceptance of this report and its incorporation in the minutes of the Transactions of this Society. We also recommend the continuance of this work, and the appropriation of Fifty Dollars asked for by the Committee.

On the report of the New England Medical Council, we recommend the acceptance of this report. On this matter, action has already been taken by the House of Delegates.

On the President's report, we recommend the acceptance of the report, and the incorporation of it in the minutes. We wish to thank Dr. Graves for the tremendous amount of energy and time that he has spent in representing us with relation to the Relief Administration. We commend to the earnest consideration of the members of this Society

the various subjects so ably discussed by Dr. Graves in his report.

SPEAKER SANDERS: You have heard the report of the Committee on Officers' Reports. Is there any discussion?

DR. LORD: I would like to make a motion to this effect, that the report of the Committee on Officers' Reports be adopted, with the exception of that recommendation with regard to the Committee on Medical Jurisprudence.

This motion was seconded by Dr. Harry O. Chesley.

SPEAKER SANDERS: It has been moved and seconded that the report of the Committee on Officers' Reports be approved and adopted, with the exception of that section pertaining to the change of name of the Advisory Committee on Medical Jurisprudence.

The motion was carried.

DR. METCALF: Dr. Blood is here this morning, and I think if we have ten or fifteen minutes, it would be well to hear him.

DR. BLOOD: The subject which I wish to bring up is the question of maternity and infancy. I think it is vitally important to the State of New Hampshire, in the first place, and equally important to the physicians now and in the near future. My interest in the matter is largely due to the formation of the New England Obstetrical and Gynecological Society in which we should have many more members from New Hampshire than we have.

As a result of my connection with that society, I have been interested in what we are doing in this state. It is hardly necessary to call to your attention the fact that there is no committee or section in this Society which is doing anything special along this line.

Eight thousand mothers gave birth in this State, according to statistics. About five hundred physicians attend those mothers, and they are distributed, of course, as we know, all over the state. Some of them are back in the rural areas, where the physician arrives late or not at all, and some of them are in the cities. It is rather interesting that the mortality is rather greater in the cities than it is in the rural areas. It is also rather interesting that there is a great variation in the figures between the different cities, one city as high as 785 and another as low as 202 in the year 1932. By counties, it varies very much, too.

The death rate in the first year of the child is also very high. The only thing that is being done for this is being done through the Board of Health.

It is my thought that this could be brought about by the same method that we have in other specialties, to have a committee appointed to take charge of this, and work with the State Board of Health, that controls the state appropriation on this question.

I believe that we are too small to have a section on this, but the committee would be much worth while.

Discussion on this subject was then entered into by Dr. Metcalf, Dr. Lord and Dr. Rublee.

DR. GEORGE C. RUBLEE: I wish to make a motion, that a committee of three or five, as the Chair advises, headed by Dr. Blood, be appointed as a Maternity and Infancy Committee.

This motion was seconded and was carried.

SPEAKER SANDERS: On motion duly made and seconded, I will now declare this meeting adjourned, until eight-thirty o'clock to-morrow morning, standard time.

Adjourned.

WEDNESDAY, MAY 16

The House of Delegates convened for its third meeting at the Hotel Carpenter, Manchester, New Hampshire, on Wednesday morning, May 16, 1934, at eight-thirty o'clock.

The meeting was called to order by Dr. Henry C. Sanders, Jr., Vice-Speaker.

SPEAKER SANDERS: The first business of the meeting this morning is to listen to a report of the Committee on Nominations.

DR. WILKINS: Mr. Speaker, Your Committee has met and considered all the vacancies to be filled and submits the following report:

For President,
Frederic P. Lord,
Benjamin W. Baker,
Chancey Adams.

For Vice-President,
Clifton S. Abbott,
Charles F. Nutter,
Richard E. Wilder.

For Secretary-Treasurer, to fill out the remaining year in Dr. Sullivan's term, Carleton R. Metcalf.

For Councilor for Cheshire County, A. A. Pratte, for five years.

For Councilor for Sullivan County, Emery M. Fitch.

Both are reappointments.

Trustee, for three years, Thomas W. Luce.

Speaker of the House of Delegates, Henry C. Sanders, Jr.

Vice-Speaker of the House of Delegates, James B. Woodman.

Necrologist, Clarence E. Dunbar.

Delegate to the A. M. A. 1934-35, Deering G. Smith.

Alternate delegate, 1934-35, Emery M. Fitch.

Delegates to the State Societies to be appointed by the Secretary, as has been the custom in the last few years.

Committee for Scientific Work, Carleton R. Metcalf, Frederick P. Scribner and Richard W. Robinson.

Public Relations, Public Policy and Legislation, Samuel T. Ladd, John Dill, Charles Duncan, the President and Secretary-Treasurer Ex-Officiis.

Publications, Carleton R. Metcalf, Henry H. Amsden and Warren Butterfield.

Tuberculosis, Robert B. Kerr, R. M. Deming, A. L. Wallace.

Mental and Social Hygiene, Charles H. Dolloff, Benjamin W. Baker and Charles A. Weaver.

Control of Cancer, George C. Wilkins, George F. Dwinell and Howard N. Kingsford.

Lay Health Organizations, one member for five years, Robert B. Kerr.

Medical Education in Hospitals, one member for three years, Robert J. Graves.

The new Committee on Maternity and Infancy work, Robert O. Blood, Benjamin P. Burpee and Chester F. McGill.

SPEAKER SANDERS: There is a quorum present, and now we will proceed to the election of officers. The first officer to be elected and voted for is the President.

DR. PAUL DYE: I move you, Mr. Speaker, that one ballot be cast by the Secretary for Frederic P. Lord for President.

This motion was seconded and was carried.

SPEAKER SANDERS: Dr. Frederic P. Lord, having one vote cast by the Secretary, is declared duly elected as President of the Society for the ensuing year.

The next office to be filled is that of Vice-President. Please prepare your ballots for Vice-President. I will appoint Dr. Dye and Dr. Dube as tellers to check the ballots.

(Ballots were then cast.)

DR. DYE: I would like to report that there was a unanimous vote for Dr. Abbott, thirteen ballots.

SPEAKER SANDERS: Then I declare Clifton S. Abbott duly elected as Vice-President of this Society for the ensuing year.

Our next business is to elect a Secretary-Treasurer to succeed Dr. Dennis E. Sullivan for the unexpired term. Dr. Carleton R. Metcalf is the Committee's nominee.

DR. DYE: Mr. Speaker, I move that one vote be cast for Dr. Metcalf for Secretary-Treasurer.

This motion was seconded and was carried.

SPEAKER SANDERS: We are now ready to proceed with the election of other officers.

DR. ROBERT J. GRAVES: I move that the Secretary be instructed to cast one ballot for the whole ticket.

This motion was seconded and was carried.

DR. METCALF: The Secretary has cast one ballot for the whole ticket.

DR. SANDERS: Under the heading of new business, I am going to ask Dr. Ladd to supplement his report of the Committee on Public Policy and Legislation.

DR. SAMUEL T. LADD: Mr. Speaker and Members of the House of Delegates—This Committee has functioned ever since I have been a member of the Committee, and we have tried to accomplish something, but with a flat failure. I believe that the duties of this Committee are so vast that the suggestions that I personally have are these. That the entire medical profession of the State must see to it that the program that we lay out for the coming year should be taken up by the individuals of our society and thereby go to our respective legislators before election. In other words, the New Hampshire Medical Society must do what our honorable President suggested in his annual address. There must be more activity on the part of the medical society, and if they want to accomplish any of these projects that will come up before the General Court, it will be necessary to do something about it.

DR. GRAVES: I believe very firmly that we should have our legislative program, so far as possible, outlined within the next two months, three at the latest. We have always, before this, waited practically until after the legislature meets and the bills are in, before much of anything was done.

DR. SAMUEL T. LADD: If I am going to serve on this Committee, I am going to ask each and every one of you fellows in the counties and in the towns to see to it, if we put on a program, that you have carried it to your respective candidates, irrespective of party affiliations. In that way, you are going to accomplish something. Otherwise, you are going to drift haphazardly, as we have been going for the last twenty-five years.

SPEAKER SANDERS: There is a report that has been submitted on the Amendment to the Constitution and By-Laws. This Committee reports on the proposed amendment of Monday night.

DR. METCALF: The Committee on Amendments to the Constitution and By-Laws recommends:

(1) That Chapter 1, Section 5 of the By-Laws be amended by adding the words "or totally disabled" after the word "age" and by striking out certain words, so that the section will read, "Any physician who has been a member of this Society for a continuous term of fifteen years and who is either not less than sixty-five years of age or totally disabled, on the request of his county society, may be made an affiliate member by a majority vote of the House of Delegates. Affiliate members shall have the same rights and privileges as other members of the Society, but shall not be required to pay dues.

(2) That Chapter XI, Section 1, of the By-Laws be amended by striking out the words "control, investing power, and" in the second sentence, so that the sentence will read, "The distribution of its income shall be vested in a committee whose members shall consist of the Trustees of the Society, the President and the Secretary-Treasurer."

The above section refers to the Benevolence Fund.

SPEAKER SANDERS: What action do you want to take on this report of the Committee on Amendments to the Constitution?

DR. KEELEY: I move that the report of the Committee on Amendments to the Constitution and By-Laws be accepted and adopted.

This motion was seconded and was carried.

DR. H. O. SMITH: A further recommendation of the Committee on Amendments to the Constitution and By-Laws is as follows:

We recommend that no change be made in Chapter IX of the By-Laws, relating to the choice and duties of the Advisory Committee on Jurisprudence.

SPEAKER SANDERS: You have heard the report of this Committee on Amendments to the Constitution and By-Laws. What action will the House take on this report?

DR. WILKINS: I move that it be accepted and adopted.

This motion was seconded and was carried.

DR. SANDERS: I wonder if you have anything to say with regard to Resolutions on Dr. Sullivan's death, to be drafted on behalf of the Society, Dr. Lord.

DR. LORD: You rather caught me unawares. It is something that I have spoken of to some of the men. I had felt that it was customary in organizations of this type to go on formal record in such a case as Dr. Sullivan's death. I feel very much that those things seem empty, very often, but I feel that we should go on record officially and make a proper resolution to be expressed on our records and sent to the members of his family, over and above what has been done so well by our Secretary in his reports and by our President. I would be glad to hear what the others have to say about it. I hadn't formulated anything further.

DR. METCALF: I think it would be a very nice thing to do, and very acceptable to the members of his family. Dr. Graves has already written something on it, and I wonder if he would be willing to elaborate that.

DR. GRAVES: Dr. Amsden has written the best obituary I have ever seen, and I move you, sir, that the House of Delegates request Dr. Amsden to prepare a proper memorial and resolution, to be spread upon our records and forward a copy to Dr. Sullivan's family.

This motion was seconded by Dr. Wilkins and Dr. Metcalf and was carried.

DR. METCALF: I would move you, Mr. Speaker, that the thanks of the New Hampshire Medical Society be extended to the Manchester Medical Society, to the guests, the State Board of Health, the exhibitors and all those who have contributed to the success of this meeting.

This motion was seconded and was carried.

SPEAKER SANDERS: The next business is the selection of the place for the next annual convention.

DR. LORD: I would like to make a motion, subject to being condemned by this organization, that the meeting be held at Manchester. Apparently, it is the most popular place for our meeting. I would move also that the date be left to the discretion of the Secretary or the President.

This motion was seconded and was carried.

DR. PAUL DYE: I move you, Mr. Speaker, that we adjourn.

This motion was seconded and was carried.

Adjourned at ten o'clock in the morning.

MISCELLANY

NEW MEMBERS

Pierre A. Boucher, Derry.
Francis J. C. Dube, Nashua.
Christopher A. Mason, Greenfield.
Paul C. Marston, Freedom.
Herbert B. Messinger, Franklin.
Joseph McCarthy, Concord.
Henry W. Perrin, Lisbon.

DEATH

Harry H. Boynton, Lisbon.

OLD ELBOW INJURIES

Operations for Bony Block

BY FREDERIC JAY COTTON, M.D.†

IT is a matter of common experience that operations for cure of limitation of motion at the elbow are unsatisfactory. And such limitation of motion very often results from elbow fractures in adults to a distressing degree. In adults the problem is utterly different from that in children, in whom non-interference is the one best policy. After childhood, one has nothing to hope from growth and adjustment, for time brings us nothing. And in many cases one hesitates to resort to the very useful operation of an arthroplasty, which involves at best some loss of power and stability.

The operations here described are among the very few that have proved really useful in cases demanding relief but not justifying arthroplasty. My knowledge of the two goes back to my army use of them in 1919. They are probably much older than that, but seem to be strangely little used.

Many cases of bony block to flexion and extension, even where there is considerable deformity of joint surface, are directly due to contact of the olecranon or coronoid process on bone. Not uncommonly, even without other bony deformity from fracture, old elbow injuries show well-marked enlargement of the coronoid with or without evidence of direct injury, an enlargement directly obstructing flexion.

Operation No. 1. This is simply the removal of the coronoid tip and as much more as seems wise. The route of access is in front, down the line separating the biceps and the supinator longus, and carried thence into the forearm. The first thing to do is to locate the radial nerve in the upper end of the wound. Once identified it is rolled out of the way, outward with the muscle. In the floor of the wound, that is the lower end, is the radial head and neck with the biceps insertion. With the arm flexed a bit, the biceps tendon can be pulled forward, giving direct access to the coronoid. Only the insertion of the brachialis anticus needs clearing away a bit, and much or little of the coronoid can be removed. The nerves and vessels to the inner side are hardly within dangerous reach.

Operation No. 2 consists in the shortening of the olecranon. This is far more often called for, both because limitation of extension is more important than that of flexion and because impingement of the olecranon seems much more often the deciding factor in a block, and is more often definitely overgrown*. The operation is facilitated by the fact, which one forgets, that the triceps tendon is not attached to the end of the olecranon, but essentially at its tip. Between the olecranon and the triceps tendon lies a considerable bursal space usually continuous with the subtricipital pouch and the joint.

The route of approach is from the outer side, with a curved incision back of the condyle and exposure of the articular junction of the external condyle and olecranon. Then one must determine how much is to come away. A triangle as sketched is usually about right and this can

CORONOID AND OLECRANON.

Upper figure: Overgrown tips of coracoid and olecranon processes.

Lower figure: Shows direction of cuts and approximate levels at which both bones can be cut away without damage to the joint. The cut in the olecranon is *above* the triceps tendon insertion.

Most of the back end of the olecranon is covered by a bursa.

be spared without damage to joint or tendon insertion. It is very desirable to cut this triangle clear in one continuous cutting across with a medium-sized thin osteotome without ragged surfaces. That is all there is to the operation. No vessels have been cut, and no muscle save some anconeus fibres. One or two deep approximation sutures are used followed by interrupted skin sutures and pressure dressing as usual.

There is one point most important because merely removing the olecranon tip is not enough. The joint must be brought out to full extension and much force may be required. One may feel, and hear, the giving way of periarticular adhesions. Moreover, early and rather vigorous active motion, but short of pain production, is needful to keep what one has gained.

CASES

CASE I. J. F., aged 26, gas plant worker, seen for Dr. W. H. Bennett, of Taunton, June 13, 1932. Accident suffered on January 5, 1932, when he was caught

†Cotton, Frederic Jay—For record and address of author see page 817, issue of April 12, 1934.

*This overgrowth, irrespective of direct trauma, seems a reactionary sort of thing. There is no arthritis accompanying it, merely an accretion of osteochondritic growth. Not uncommonly it shows up in reduced luxations with no fracture.

in a conveyor belt. The injury to the elbow was the only serious damage.

The head of the radius was excised and he had much physiotherapy following the operation. As first seen he had elbow flexion ten degrees beyond the right angle, with no rotation in pronation, and in supination twenty degrees. Extension was good for forty-five degrees short of the straight line. X-rays showed the coronoid process long, the olecranon was much overgrown and very evidently limiting the range of extension. Operation June 21, 1932.

Typical operation: resection of at least ¾" of the olecranon. The arm came down to almost 180° on the table. Under exercises his rotation improved beyond expectation and he was at work with no disability after three months, and examination showed ½ normal supination, near normal pronation, extension passively to full 180°, a little less, actively. But active extension to 180° was noted, December 3, 1932.

CASE II. G. F., hospital attendant, aged 38, seen November 2, 1933 for Dr. C. P. Hutchins of Syracuse. Injured four months previously. The elbow was dislocated in handling a patient but not recognized or treated. He is a small but powerful man. The right elbow was locked at a right angle. X-ray study showed a slight outward displacement bringing the ridge of the sigmoid cavity external instead of internal to the ridge between the trochlear and capitellar surfaces.

This displacement of about 3/8" brought the coronoid and the olecranon processes opposite the deep portion of the external condyle. That locked the joint in flexion and extension absolutely. Motion in rotation was not limited. Sensory loss in the third and fourth fingers clearly showed some damage to the ulnar nerve.

After four months any operative replacement of the joint would have meant "taking it all to piecea" with marked chance of having it freeze up again altogether. Arthroplasty was particularly unattractive as this man's job needed a strong as well as a mobile joint. It was decided to try what clearing the olecranon blockade would do.

Operation November 3, 1933. Syracuse Memorial Hospital with Dr. Richard Farr. "Transplantation" of the ulnar nerve to the front was done first and proved not easy owing to the unexpectedly massive fibrous infiltrate throughout the whole region.

Then, through the usual external incision, the olecranon was shortened, liberally.

The subtricipital pouch ("bursa") was opened and some heavy adhesions divided. The elbow was then extended with cracking of heavy adhesions somewhere nearly 180 degrees, and flexion became practically normal. The joint motion was smooth with no jerks. Two days later there was no reaction, save a slight increase in anesthesia of the last two fingers, due to nerve handling. November 17, 1933 he was reported as soundly healed with motion in flexion 10 degrees beyond a right angle and extension through 30 degrees, to 120 degrees, with a range of 40 degrees a fortnight after operation, with exercises barely begun.

January 22, 1934 this man returned to full duty. Flexion to 60 degrees, extension to 147 degrees, pronation 80 degrees, supination 70 degrees. Slight ulnar hypoesthesia, persisted to that date.

CASE III. A. R., aged 30, a roofer, seen April 10, 1933. Injury of August 19, 1931. He fell from staging, sustaining compression fracture of the spine, and various other injuries. The remaining disability is of the right elbow only. He is a well-made muscular man. There is 50 degrees limitation of flexion. A fracture of the radial head does not now limit rotation. X-ray shows coronoid overgrown, but not impinging. The olecranon was overgrown, and in a film taken in a maximum extension the solid impact of the long olecranon tip in the olecranon fossa is unmistakable.

Operation Salem Hospital, October 8, 1933. A large wedge of the olecranon removed in the usual way. On manipulation after the operation the arm came out to full 180 degrees extension. Owing to delay in instituting exercises, extension was slow in returning, but January 24, 1934 he showed nearly full extension (15 degrees short) and in the x-ray only the regular partial reproduction of the excised bone. He is now ready for work.

CASE IV—(Inserted for contrast). J. O'B., aged 30, painter, seen October 27, 1933 for Dr. C. W. Harrison. The lesions were an injured spine and left wrist and left elbow in a fall of 30 feet, September 9, 1933. Essential disability was limited to elbow. No rotation, flexion to a little better than a right angle, extension fifty degrees short of the straight line. Preparations for removal of radial head and the typical olecranon wedge removal were made. The olecranon was definitely overgrown. At operation, November 10, 1933, the removal of the radial head completely cleared both rotation and extension so that there was no need of touching the olecranon. So the question of location of the block is not always easy. December 1, 1933. The patient has practically complete extension, and good rotation.

MORTALITY RATES

Telegraphic returns from 86 cities, with a total population of thirty-seven millions, for the week ending May 19, indicate a mortality rate of 11.3 as against a rate of 10.6 for the corresponding week of last year. The highest rate (21.5) appears for Wilmington, Del., and the lowest (5.3) for Flint, Mich. The highest infant mortality rate (25.1) appears for San Antonio, Texas, and the lowest for Des Moines, Iowa, Erie, Pa., Louisville, Ky., Lowell, Mass., Lynn, Mass., New Bedford, Mass., Oklahoma City, Oklahoma, Paterson, N. J., Salt Lake City, Utah, and Yonkers, N. Y., which reported no infant mortality.

The annual rate for 86 cities is 12.4 for the twenty weeks of 1934, as against a rate of 11.8 for the corresponding period of the previous year.

SUMMARY OF DEATHS AND DEATH RATES (ANNUAL BASIS) FROM AUTOMOBILE ACCIDENTS PER 100,000 ESTIMATED POPULATION FOR 86 CITIES FOR CORRESPONDING PERIODS OF 1934 AND 1933

	Week ending May 19, 1934	Week ending May 20, 1933	First 20 weeks 1934	First 20 weeks 1933
Total deaths	152	135	3,128	2,759
Death rate	21.2	18.8	21.8	19.2
Deaths due to accidents in city	119	105	2,544	2,224
Death rate	16.6	14.6	17.7	15.5

—*Bureau of the Census.*

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 20241

PRESENTATION OF CASE

First admission. A thirty-one year old American, a department manager in a paper box factory, entered for the first time a year before his final admission.

Twenty-one months before admission the patient's mother noticed a slight swelling in the right side of his neck. He felt perfectly well at the time. From that time the swelling grew steadily larger except during two periods, the first four months before entry, when it became larger for a few days and then dropped to its usual size, and again a week and a half before entry, when it decreased in size, remaining small until admission. The swelling was always soft, painless, and never inflamed. He was forced to wear larger collars, changing them as the swelling grew. He had no hoarseness or difficulty in swallowing or breathing, and no other swellings elsewhere in his body. One month before admission he had a two week period of headaches localized between the temples and about the top of the head. These headaches were aggravated by noise, confusion, or any disagreeable incident. They were not present for the two weeks immediately before admission.

The family and marital histories are irrelevant. Twenty-one years before entry he broke his nose and since then had had some obstruction in his right nostril. Five years before entry while leaning over to pick up some papers he felt an agonizing pain in his right hip on standing up. This apparent back strain troubled him for about seven weeks, and since then his back had been weak. During the past ten days he had had a recurrence of this soreness in the right hip. He was slightly deaf in his left ear.

Physical examination showed a well nourished man apparently in good health except for a large lump in the right side of his neck. The right pupil was slightly smaller than the left. The right nostril was obstructed by a deviated septum. The teeth were ill kept and carious. The trachea and larynx were displaced to the left by a mass larger than a fist extending from the supraclavicular fossa to the parotid region and from the midline in front to the postauricular region behind on the right side of the neck. There were firm, elastic, discrete, easily palpable masses from the size of a bean to that of a chestnut surrounding the larger mass. There were no other enlarged glands. The liver and spleen were not palpable. There was a two or three millimeter erosion on the anterior aspect of the scrotum. This had been present for approximately six weeks. The heart and lungs were negative. The blood pressure was 110/70 on the right side and 110/60 on the left.

The temperature was 99.6°, the pulse 90, the respiration 22.

Examination of the urine was negative. The blood showed a red cell count of 4,900,000, a hemoglobin of 80 per cent, a white cell count of 7,700, with 87 per cent polymorphonuclears, 4 per cent lymphocytes, 5 per cent large mononuclears, 2 per cent young polymorphonuclears. The platelets were normal in number. Examination of the stools was negative. The Hinton test was negative. The basal metabolic rate was plus 17.

X-ray examination of the chest showed clear lung fields except for an area of dullness involving the extreme right apex, interpreted as an overlying soft tissue mass, plainly visible in the neck.

The visiting man on service found in addition a slight pulse difference between the right and left sides, a palpable liver and spleen, and increased supracardiac dullness. Another white blood cell count six days after admission was 4,600, with a differential of 59 per cent polymorphonuclears, 29 per cent lymphocytes, 4 per cent large mononuclears, 7 per cent eosinophils and 1 per cent basophils.

A biopsy of one of the cervical glands was reported as lymphoblastoma, Hodgkin's type. X-ray treatment was begun. The patient was discharged on the twelfth day, to be followed in the X-ray Treatment Clinic.

History of interval. Following an x-ray treatment after his discharge the swelling in his neck subsided, and for the next year he felt quite well. Eleven days before his second entry while walking beside a truck he suddenly turned his head for some reason and bumped it on the edge of the truck. He was stunned, but did not lose consciousness. The site of the injury was in the upper and front part of the temporal region. There was considerable localized edema and redness. Three hours after the accident he developed a generalized headache which gradually increased in severity and continued until admission. It was aggravated by any motion, interfered with his sleep, and was not relieved by pyramidon. The day before admission he entered the Emergency Ward. Skull films showed no evidence of fracture. The suture appeared quite widely separated and it seemed probable that the intracranial pressure was increased.

Second admission, a year after his previous discharge.

Physical examination showed a well nourished man apparently in excellent health. There was slight stiffness and pain upon bending the neck. In both sides of the neck were many discrete soft non-tender glands from .5 to 1.5 centimeters in diameter. The spleen was palpable about one fingerbreadth down and upon deep inspiration the edge was sharp and firm. A complete neurologic examination was negative except for very severe headache.

The temperature was 103°, the pulse 110, the respiration 23. The blood pressure was 120/76.

Examination of the urine was negative. The blood showed a red cell count of 3,200,000, a hemoglobin of 70 per cent, a white cell count of 3,100, 86 per cent polymorphonuclears, 10 per cent lymphocytes, 4 per cent large mononuclears.

A lumbar puncture done in the Emergency Ward on the day before admission to the Neuromedical ward showed an initial pressure of 325. Pressure upon the jugulars showed no block. The spinal fluid was clear, colorless, and did not clot upon standing. The cell count showed 320 small round cells taken to be red cells. Some of them however had a small knob on one end suggesting that they might have been yeast cells. There were 28 white cells, 17 per cent lymphocytes. The total protein was 43, the sugar 31.6, the chlorides 708. Another lumbar puncture showed that these peculiar cells in the spinal fluid were definitely yeast cells and showed budding forms. A culture of the spinal fluid showed a good growth of yeast.

He continued to have spinal taps, each showing an increased cell count and yeast organisms. At one puncture 75 to 90 cubic centimeters of spinal fluid was removed over a period of two and a half hours. One-half normal saline was given intravenously. After eighty ounces of the fluid had been injected the headaches stopped. His temperature remained elevated and at times was picket fence in character, reaching as high as 104.5°. At admission he was irrational. On the forty-seventh day he developed bronchial breathing in the right chest. On the following day râles were heard all over the chest. The temperature was 103°. He gradually failed, became much weaker, and died approximately ten weeks after admission.

Clinical Discussion

Dr. George W. Holmes: We have a long series of films on this patient, none of which is very interesting. The first observation was at the time of the first admission. I think you can see the large soft tissue mass in his neck and the area of dullness at the right apex which we interpreted as being due to pressure of the apex down from the mass in the neck. The glands in that region are not due to tuberculosis.

Then a series of films taken after treatment shows a disappearance of the mass in the soft tissues of the neck but not a complete disappearance of the shadow in the upper mediastinum and region of the apex. There are still no changes in the lung.

Then we have a slight increase in this shadow and a little later some disappearance in the shadow. It looks as if there was active disease in the glands in that region at that time.

The last film was taken three months before death. At that time there was still some widening of the upper mediastinum without any recurrence of the mass in the neck.

The skull films showed the characteristic blood vessel markings. The suture was not closed. In some of the films an area of diminished density is seen at this point. Another film shows a similar area at a different point. I do not know just how to interpret those. They may mean nothing, or they may mean localized areas of infiltration of lymphoma in the bone. They are not however characteristic.

A plate of the gastro-intestinal tract was negative.

Dr. James B. Ayer: I have nothing to add, but I am interested in this relationship between yeast infection and lymphoblastoma. We certainly have yeast infection without lymphoblastoma, but the occurrence of the combination seems to be increasing. Is there anything in the pathologic field that correlates the two?

Dr. Tracy B. Mallory: No causal relationship has been proved. There are a number of scattered case reports and the combination has been very frequently observed.

Dr. Francis T. Hunter: I might take this opportunity to protest about the usual dietetic description of lumps in the neck and various parts of the body. These are usually described as the size of a bean, and you cannot tell what kind of bean. It may be anything from a black eyed soy bean to a Mexican jumping bean. I think it is a pretty slovenly description. It is just as easy to say a centimeter or two, or something you can prove in court.

Dr. J. H. Means: There was an editorial on that in the New England Journal of Medicine or the American Medical Journal; we posted it on the bulletin board. I do not think that either that or Dr. Hunter's complaint will alter the practice of comparing things to potatoes or anything else.

Clinical Diagnoses

Torula cerebrospinal meningitis.
Lymphoblastoma.

Anatomic Diagnoses

Torula meningitis with metastases to the kidney, adrenal and lungs.
Lymphoblastoma, Hodgkin's type, involving spleen, bronchial and retroperitoneal glands.

Acute bronchitis.
Pulmonary edema.
Endocarditis, acute terminal, mitral..
Otitis media, left.

PATHOLOGIC DISCUSSION

DR. MALLORY: The progress of science is shown by the fact that these small round bodies that looked like red cells were promptly recognized as yeast. The first case of torula meningitis in this hospital went totally unrecognized for a matter of days, during which counts of two, three and four thousand red cells were put down day after day in the record. I have forgotten whether the second was as promptly recognized as this one or not. The spinal fluid sometimes contains simply extraordinary numbers of yeast cells and there may be very little in the way of cellular reaction to them. That is borne out by the pathology in the brain in some of these cases. In our first case it was most striking. The entire brain presented a moth eaten appearance. There were great holes throughout the brain substance everywhere and in these holes nothing but masses of yeast without a sign of cellular reaction to them. To some degree that may have been postmortem overgrowth, but I feel fairly certain it could not have been entirely that, and the paucity of reaction is rather striking in many cases.

This happens to be the fifth case that I have seen of coincident torula infection and some form of lymphoblastoma. Four out of the five have been typical Hodgkin's disease. The fifth I saw the section from, prepared at the Mayo Clinic, and that undoubtedly was lymphosarcoma, not Hodgkin's; so that one can get it in either type. I had a chance two years ago to see a manuscript which so far as I know was not published, collecting some eighty-odd cases of torula infection, and there were about a dozen in which torula and Hodgkin's were found together, so the coincidence is much too striking to be purely a matter of chance. It is not so close as the coincidence of tuberculosis and Hodgkin's, but it certainly approaches it.

In this man we found torula in two other spots besides the meninges. His adrenals contained several tiny little cysts and those are filled with yeast organisms practically without reaction. Scattered throughout his lung are miliary lesions about the size of miliary tubercles consisting of accumulations of monocytes, and in many of these are yeast cells.

The question of the portal of entry has never been settled and often nothing has been found at autopsy to suggest one. In this case with a lung infection it would seem possible that the lung was primary. On the other hand the distribution is so much like that of miliary tuberculosis that it is quite possible that the lung is secondary.

It is interesting that in one of the other two cases we had in the hospital lesions were also found in the adrenal.

DR. HOLMES: Did you examine the skull?

DR. MALLORY: I have no note on that, Dr. Holmes.

CASE 20242

PRESENTATION OF CASE

A thirty year old unemployed American Negro saxophone player entered complaining of weakness and fever of six months' duration.

Approximately four years before entry the patient noticed a painless, colorless swelling under his left arm which gradually increased to the size of a hen's egg in a period of about one year. A short time after the appearance of the swelling he began to have frequent night sweats, fever, and occasional chills. He had no cough or hemoptysis. He lost some weight, but was able to continue his work as a saxophone player. There were no other swellings. Three years before admission he entered a New York hospital, where he remained for three and a half months, during which time he had a biopsy and x-ray treatment. He was discharged against advice. While in that hospital he was up and about, but had intermittent fever. The febrile cycles were about ten days at first and later lasted for about three weeks. According to the patient the biopsy report was Hodgkin's disease. The x-ray treatment that he received in New York was given to the left axilla, the abdomen and the back. For the next two years he lived at home, usually up and about, but at times he would have chills, fever and drenching night sweats. His appetite was good and he maintained his weight at 130 pounds. There was no diarrhea. He did not have steady work, but at times played the saxophone at a dance. Six months before entry he began to feel more tired and weak, and for the past two weeks had remained in bed. He had no chills, but he usually felt feverish and had frequent drenching night sweats. No swelling appeared. He became short of breath very easily. There was no cough, sputum or hemoptysis. Since his discharge from the New York hospital he had received no special treatment and no x-ray treatment.

His family and past histories are irrelevant.

Physical examination showed a well developed but cachectic colored man. There were a few small cervical glands. In the right axilla was a large firm non-tender gland two by two centimeters. There were occasional râles at the bases and bronchophony posteriorly over the scapular spines. The heart was at the upper limits of normal in size. There was a blowing systolic murmur over the whole precordium and an early blowing diastolic murmur at the third left interspace. The blood pressure was 100/40. The pulse was collapsing in type. There was capil-

lary pulse and a positive Duroziez's sign. The abdomen was slightly distended. The spleen was felt two or three fingerbreadths down.

The temperature was 103.1°, the pulse 120, the respiration 36.

Examination of the urine showed a specific gravity of 1.018, a trace of albumin and an occasional hyalin cast. The blood showed a red cell count of 1,010,000, a hemoglobin of 20 per cent, a white cell count of 6,400, with 71 per cent polymorphonuclears. On smear most of the polymorphonuclears were young. The red cells showed marked achromia. Six normoblasts were seen. Examination of the stools was negative. A Hinton test was negative. A blood culture was negative.

Upon admission the patient was given a transfusion, following which the aortic diastolic murmur was inaudible. He became irrational. Four days later he was given another transfusion with a similar reaction. On the eleventh day a biopsy of the left axillary gland showed lymphoblastoma, Hodgkin's type. He failed very rapidly and died on the fourteenth day.

Clinical Diagnosis

Hodgkin's disease.

Anatomic Diagnoses

Hodgkin's disease involving the axillary, tracheal, retroperitoneal and mesenteric lymph nodes and the spleen.
Acute miliary tuberculosis of the lungs, liver and kidney.
Pulmonary tuberculosis, healed, left apex.
Tuberculosis of tracheobronchial nodes, healed.
Hypertrophy of the right kidney.
Hydrothorax, bilateral.
Ascites.
Biopsy wound of left axilla.
Appendectomy, healed.

Pathologic Discussion

Dr. Tracy B. Mallory: The diagnosis of most cases of Hodgkin's disease of course is entirely unsettled until one has a biopsy and completely obvious afterwards, so that there is very little point in attempting differential diagnosis.

One point of interest, however, is why cases of Hodgkin's die and what they die of. It was for that reason that I picked out this case today. There was nothing in the clinical history to give anyone any lead and there was nothing peculiar noticed in gross at the autopsy either. When the microscopic sections came through, however, it was quite evident that we had two lesions side by side in many places and so intimately intermingled that in places no one could tell which was which. In all probability, however, Hodgkin's disease was not the immediate cause of his death, but a fulminating miliary tuberculosis.

The only significant old focus of tuberculosis that we found was in his tracheal and bronchial glands.

The frequency with which tuberculosis and Hodgkin's occur in the same case of course has always been commented upon, but it has never been clear how to evaluate the association. If one looks hard enough for tuberculosis in the autopsy of any person above the age of twenty-five one can almost invariably find it. So that since this search for tuberculosis has been conducted with great enthusiasm I think it is not at all surprising that nearly invariably it is found in cases of Hodgkin's. On the other hand the number of cases in which acute tuberculosis is present is relatively much less striking. This is the second one in five years in the autopsy series here at the Massachusetts General Hospital.

The question always comes up as to whether x-ray treatment may or may not have influenced these cases unfavorably and possibly have caused the tuberculosis to progress more rapidly. How do you feel about that, Dr. Holmes?

Dr. George W. Holmes: I should have said that the combination of tuberculosis and Hodgkin's is more common than you have stated it to be.

Dr. Mallory: You think a significant degree of tuberculosis?

Dr. Holmes: In the cases of Hodgkin's that do not do well under treatment we have found several that had evidence of tuberculosis, and I should think you would see more than you have.

Dr. Mallory: One can get in pure Hodgkin's disease almost complete duplication of every picture one sees with tuberculosis; so that it might be hard to differentiate radiologically.

Dr. Holmes: As to the effect of radiation on tuberculosis, I think with large doses one may cause tuberculous foci to light up, but the doses we generally use in Hodgkin's are not large enough to do that. In some cases that do not respond to the usual dose, a large dose may be given with breaking down of the glands. I am quite certain there are cases in which the glands have broken down and miliary tuberculosis has developed as a result. The possibility is well worth considering.

Dr. Chester M. Jones: How commonly do you see hepatic lesions in tuberculosis? It has struck me that they are very rarely reported here. I have talked with a man from Saranac who said it is very common. We see very little relatively, but as one reads in the textbooks it appears to be a very common finding. It seems to me it is uncommon in a general hospital.

Dr. Mallory: If you have a terminal miliary tuberculosis the liver is almost always involved. A fair percentage of tuberculosis cases wind up with a miliary process; but aside from that I have never seen it here.

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THE MODERN TREATMENT OF NEUROSYPHILIS

THE Annual Report of the Trustees of the Boston Psychopathic Hospital for 1933, in addition to giving a summary of the work of the hospital, which is of the highest character, also presents an important review of the treatment of neurosyphilis under the direction of Dr. Harry C. Solomon, Chief of the Department of Therapeutic Research. Treatment of syphilis of the central nervous system was started in this hospital in 1913 and it is interesting to recall with Dr. Solomon the various stages of the changes in therapeusis of neurosyphilis in the last twenty years.

The original work was stimulated by Swift and Ellis, who, in 1912, introduced intraspinal treatment with salvarsanized serum. Salvarsan had been brought to this country a few years before, and in the interval it was learned that this medication, so efficient against primary and secondary syphilis, was not especially efficacious in the treatment of general paresis and was only valuable in a limited number of cases of tabes dorsalis. The type of treatment introduced by Swift and Ellis was used at the Psychopathic Hospital for about two years with what seemed to be a modicum of success. After an interruption by the War, this method was again taken up with the addition of arsphenamine to the serum and various other modifications. It was found that this method was successful in the treatment of cases of neurovascular syphilis and tabes dorsalis, but the effect on general paresis was not what one desired. Good results from the clinical standpoint were obtained in only ten per cent, with serological improvement in an even smaller percentage. The chief reason, it was felt, for the failure of this type of treatment was that the serum did not reach the portion of the brain involved in the paretic disorder. In 1919 the Ayer method of cistern puncture was invented and the introduction of intracistern serum was taken up with enthusiasm. The rate of improvement by this method was about twice that of the old method and the serological results were also much better.

There was always, however, a search for improved methods and in 1923 one was found in a new arsenical preparation originated at the Rockefeller Institute, called tryparsamide. This drug given intravenously proved to be markedly superior to the methods already mentioned and ultimately the use of tryparsamide, supplemented by arsphenamine, bismuth and mercury, almost entirely replaced the other forms of treatment.

Within two years, however, namely in 1925, another and even more important method was introduced into the clinic. This was the treatment by inoculation malaria. It was found, moreover, that the combination of malaria and tryparsamide in some cases gave better results than either of these methods used independently. For a time, in the search for a substitute, sodoku, or rat-bite fever, was tried. This was not found more satisfactory than malaria and has been discontinued. Lastly, in 1931, diathermy and radiothermy were added as a means of producing fever, to supplant that produced by malaria. It is too early to judge in regard to the value of this method.

Finally, Dr. Solomon summarizes the present treatment given to patients seen in his clinic. First he uses drugs, the main reliance being put upon tryparsamide, but with the use also of arsphenamine, bismuth and mercury; secondly, febrile treatment, using for this purpose malaria, typhoid vaccine, diathermy and the electric blanket. A combination of the above methods seems to give the best results and certainly improvement is now expected in well over fifty per cent of the cases, as compared with ten per cent, twenty years ago.

The clinic has not been unmindful, moreover,

of the families of these patients. Proper attention has been paid to the husbands or wives and the children of syphilitic parents. It is interesting to know that a new book is being prepared by the clinic, giving in detail the results of twenty years of study of this subject.

THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

THE One Hundred and Fifty-Third Annual Meeting of the Massachusetts Medical Society at Worcester, June 4, 5 and 6, is a matter of history, with a record of seven hundred and eighty Fellows and sixty-seven guests in attendance.

Clinics were conducted at the several Worcester hospitals. These exercises provided a broad array of instructive material.

The six sections of the Society had excellent programs and were well attended.

Twelve scientific exhibits presented important features of public health activities, progress in dealing with special diseases and the social aspects of medicine. These were all of a high order and in conformity with a growing custom among state and national society meetings. Such exhibits are now regarded as among the most important features of information pertaining to scientific medicine and its social relations.

The selection of Dr. Warfield T. Longcope of Baltimore, Physician-In-Chief of Johns Hopkins Hospital, to deliver the Shattuck Lecture was fortunate, for he delivered a scientific exposition of "The Importance of Disturbances in Nutrition in Edematous States" which was appreciated by the Fellows. This address appears on page 1243 of this issue.

The business of the Council was conducted with dispatch and without any serious differences of opinion relating to the subjects in the agenda. The last draft of the By-Laws was accepted and adopted, and a Section of Dermatology and Syphilology added to the six hitherto functioning.

The commercial exhibits were as well arranged as possible with the resources of the hotel.

The success of the meeting depended in large measure on the well-planned details of administration by the State Society and the Worcester District committees which worked in harmonious coöperation, and great credit is due to the district committee in its untiring attention to details and especially arrangements for the entertainment of the visiting ladies.

The Annual Oration delivered by Dr. Lincoln Davis dealt with the trend of changes in the social structure of the country with the implication that the medical profession has the most definite responsibility in dealing with the uncertainties of the future and especially the permanence of ideals and traditions of this nation. This inspiring address appears on page 1197 of the issue of June 7.

THE ANNUAL DINNER

The especially interesting social feature of the meeting was the Annual Dinner in the Hotel Bancroft on Tuesday evening with the visiting ladies as guests.

Dr. Robey provided a group of speakers who entertained the company with witty and appropriate preambles to instructive and stimulating addresses in response to felicitous introductions by the President.

His Honor, Mayor Mahoney of Worcester, cordially welcomed the Society and guests with the assurance of appreciation of the honor conferred in selecting his city for its Annual Meeting and his belief that the city will profit by the greater interest which will follow the instructive exercises of these three days. He invited the Society to come to Worcester again in the near future, and promised that the resources of the city would be available to insure successful and enjoyable meetings at all times.

The legal profession was represented by the Honorable James M. Morton, Jr., Judge of the United States Court of Appeals. His Honor contrasted the practice of law with that of medicine in an amusing way, showing that the slower and more elaborate approach of law to a definite question would never be appropriate in dealing with the emergencies faced by medicine. He explained that the police functions of the State required the controlling power of the courts to prevent abuses and that the law is the great safeguard against injustice. An illuminating explanation of the meaning of the Constitution and the Bill of Rights was presented, showing that the rights of the individual were protected by the Constitution as against the wishes and purposes of the majority until experience has demonstrated that the majority is right in its intention to change an existing order of society.

The Right Reverend Henry K. Sherrill, D.D., Episcopal Bishop of the Eastern Diocese of Massachusetts, in representing the clergy, paid a glowing tribute to the doctors of his earlier acquaintance with especial reference to the functions of the family physician. Having been associated with doctors in the World War, in his work at Base Hospital No. 6, and as a trustee of the Massachusetts General Hospital, he has come to feel that next to his church his greatest interest is in the hospital and that the great responsibility in both fields is the creation and maintenance of standards and the placing of men with the essential qualifications for the service required and the expectation of raising standards for the ministry which is also true

of the medical profession. Dr. Sherrill throughout his address insisted on the coöperation of medicine and theology, for the spirit of mankind must rise above the material plane of existence. He feels that the average clergyman and the average physician working together can accomplish far more than either can accomplish if working alone. In the most effective way he emphasized the growing understanding of the fact that there is no conflict in the respective fields of science and religion with impressive illustrations taken from his own experience in leading those afflicted with illness to an understanding of the great comfort and help in meeting physical and mental distress through confidence in the blessings of religious faith.

Dr. Lewis Perry, Headmaster of Phillips Exeter Academy, in his preamble to the more serious message which he wished to present to the medical profession, led the audience through emotional responses to his real or imaginary experiences as only the gifted raconteur can do. After this display of wit he told of the real problems which one has to consider in dealing with the education of the adolescent boy and girl. He paid tribute to the earnest and ambitious spirit of the young people of the present day in our institutions of learning and showed clearly the importance of having a real understanding of the psychology of youth. He was confident that, given the right human material and the understanding and sympathetic instructor, we may trust the young people to solve the individual and national problems before the human race.

He discussed the problems of sports in our secondary schools and colleges and affirmed the belief that students need to play as well as to work and that competitive games have a definite place in the student's life.

Taken altogether, President Robey earned the enthusiastic gratitude of the Society, in providing a feast of reason and flow of soul which will long be remembered by those who were privileged to listen to these inspiring addresses.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

LONGCOPE, WARFIELD T. A.B., M.D. Johns Hopkins University School of Medicine 1901. Professor of Medicine, Johns Hopkins Medical School. Physician-in-Chief, Johns Hopkins Hospital. His subject is "The Importance of Disturbances in Nutrition in Edematous States." Page 1243. Address: Johns Hopkins Hospital, Baltimore, Maryland.

CHUTE, RICHARD. A.B., M.D. Harvard University Medical School 1927. Assistant in Urology, Massachusetts General Hospital. Visiting Urologist, St. Elizabeth's Hospital, Brighton. Consulting Urologist, Natick Hospital. His subject is "The Vital Importance of the Relation of Hyperparathyroidism to the Formation of Certain Urinary Calculi—and Its Remedy." Page 1251. Address: 352 Marlborough Street, Boston, Massachusetts.

BIEBERBACH, WALTER D. M.D. University of the South Medical Department, Tennessee, 1904. F.A.C.S. Urologist, Worcester City Hospital. His subject is "Pyelo-Ureteritis Cystica." Page 1254. Address: Worcester City Hospital, Worcester, Massachusetts.

HEPBURN, THOMAS N. A.B., A.M., M.D. Johns Hopkins University School of Medicine 1905. F.A.C.S. Urologist, Hartford Hospital. Consulting Urological Surgeon, New Britain General Hospital, New Britain. His subject is "Denervation and Displacement of the Ureter for Exaggerated Renal Colic with a Report of a New Case." Page 1255. Address: 179 Allyn Street, Hartford, Connecticut.

STONE, ERIC. S.B., M.D. Harvard University Medical School 1918. F.A.C.S. Surgeon-in-Charge, Urological Service, Charles V. Chapin Hospital, Providence. Urological Consultant, Providence Lying-In Hospital, and South County Hospital. His subject is "Renal Sympathectomy. Report of Two Cases, Including One Fatality." Page 1257. Address: 199 Thayer Street, Providence, Rhode Island.

JONES, ARTHUR T. M.D. University and Bellevue Hospital Medical College 1896. F.A.C.S. Consulting Surgeon, Memorial Hospital, Pawtucket; St. Joseph's and Miriam Hospitals, Providence; Woonsocket Hospital, Woonsocket; Westerly Hospital, Westerly; and South County Hospital, Wakefield. His subject is "Spontaneous Intraperitoneal Rupture of the Urinary Bladder. Report of Case." Page 1262. Address: 131 Waterman Street, Providence, Rhode Island.

PETERS, CLINTON N. A.B., M.D. Medical School of Maine 1914. F.A.C.S. Attending Urologist, Maine General Hospital. Consulting Urologist, U. S. P. H. S. Portland, Maine. His subject is "Right Renal Calculus Associated with Multiple Biliary Calculi." Page 1264. Address: 156 Free Street, Portland, Maine.

TOWNSEND, W. G. B.S., M.D. University of Vermont College of Medicine 1924. F.A.C.S. Associate Professor of Urology, University of Vermont College of Medicine. His subject is "A Report of Four Unusual Cases." Page 1264. Address: 150 Bank Street, Burlington, Vermont.

CLUTE, HOWARD M. B.Sc., M.D. Dartmouth Medical School 1914. F.A.C.S. Surgeon, Lahey Clinic. Assistant Surgeon, New England Deaconess and New England Baptist Hospitals. Address: 605 Commonwealth Avenue, Boston, Massachusetts. Associated with him is

SWINTON, NEIL W. M.D. University of Michigan Medical School 1929. Surgical Fellow, Lahey Clinic. Address: 605 Commonwealth Avenue, Boston, Massachusetts. Their subject is "The Diagnosis and Management of Obstructive Jaundice." Page 1265.

COTTON, FREDERIC JAY, M.D. See page 817, issue of April 12 for record of author. His subject is "Old Elbow Injuries. Operations for Bony Block." Page 1289.

MASSACHUSETTS LEGISLATIVE NOTES

H. 1583 is an act providing for the insuring of the granite and foundry industries under the Workmen's Compensation Act and providing compensation for personal injuries from silicosis.

This was reported by the Committee on Labor and Industries and awaits the action of the Legislature.

S. 162 which was designed to secure the registration of Chiropractors with power to practice in Massachusetts has been given leave to withdraw.

This is one of the perennials and will blossom out next year in all probability.

Massachusetts continues to adhere to a single standard for those who wish to practice the healing art.

MISCELLANY

MASSACHUSETTS PHYSICIANS ELECTED TO MEMBERSHIP IN THE AMERICAN PSYCHIATRIC ASSOCIATION

Dr. Moses Kaufman and Dr. Frederick Ledren were elected to membership in the American Psychiatric Association at the meeting held in New York in May, 1934.

AN ENDORSEMENT OF DR. MAY'S BEHAVIOR IN TREATING DILLINGER

In a wireless to the *New York Times*, *The Lancet* upholds the Minneapolis physician recently fined and imprisoned for not informing authorities that he had treated John Dillinger, the bandit, and states "A doctor does not cease to be a citizen. For Dr. Clayton May, however, there was only one question. Did Dillinger come to him for treatment trusting in his professional honor? The answer is obvious, and Dr. May's colleagues in every country will applaud his action in not betraying a professional trust."

We do not believe that the majority of the physicians of this country are in agreement with the attitude taken by *The Lancet*.

CONVICTS SUBMIT TO RESEARCH EXPERIMENTS

According to a report published in the *New York Times* two Colorado convicts volunteered for the experimental injection of tuberculosis bacilli employed to determine whether a certain serum will prevent the development of tuberculosis. Both of these men are serving life sentences. If they survive after the completion of the time required to demonstrate the effects of this treatment, the Governor will extend executive clemency. According to Dr. J. H. Corper of the National Jewish Hospital, Denver, Col., the duration of observation of the effects of the treatment will be from twelve to eighteen months.

One may question as to whether any convict may purchase freedom in this or any other way. If executive clemency is to be exercised, may not evidence of reformation of the convict's character be the deciding test? Even granting the importance of this contribution to medicine, is it reasonable to return to society a menace to human welfare? A person who has been made resistant to the tubercle bacillus may still be one of unsocial tendencies.

A STUDY OF RETARDED CHILDREN

In a study of 20,475 "retarded children" Dr. Neil A Dayton, Director of the Division of Mental Deficiency of the Massachusetts Department of Mental Diseases in an address before the American Psychiatric Association reported his findings and conclusions of conditions existing in family groups. He found that in larger families the children are superior in arithmetic, obedience and sociability, but they frequently include such "personality and behavior characteristics" as lying, stubbornness, suggestibility and quarrelsomeness.

In smaller families the children show more of a tendency to seclusiveness and egotism. They are also more inclined to steal, and are more selfish and over-affectionate, according to the report.

It was explained that the study was made of normal families except for one defective child in each.

RECENT DEATHS

NILES—JOHN OTIS GARFIELD NILES, M.D., of Everett, Massachusetts, born in 1880, died while swimming near his summer home on Plum Island, June 5. It is supposed that he suffered a heart attack. He was educated in the schools of Somerville, and the Cambridge Latin School. He graduated from Harvard College and, in 1914, from Harvard Medical School.

Dr. Niles practiced successfully in Everett, and had served as city physician. He was a Fellow of the Massachusetts Medical Society, and the American Medical Association, a member of the Harvard Club, and was an accomplished musician.

He is survived by his widow, Mrs. Annie Louise

(Vaughan) Niles; a daughter, Mrs. Irene V. Chandler of Hartford, Connecticut; and two sons, Otis I. Niles and Alvah N. Niles.

ROBINSON—Ernest Frederick Robinson, M.D., of Auburndale, Massachusetts, died at his home, June 6, 1934. He was born in 1870, and graduated in medicine from the University of Buffalo School of Medicine in 1891.

He retired from active practice several years ago. He is survived by his widow, his mother, a brother, and a daughter.

OBER—Herbert Carroll Ober, M.D., of Newton, Mass., died June 10, 1934 at the Winchester Hospital, of which he was staff physician.

He was born in Amherst, Mass., in 1886, the son of Dr. Fred A. Ober and Mrs. Alice J. Ober. He studied dentistry at the Harvard Dental School and graduated in medicine from the Boston University School of Medicine in 1916.

Dr. Ober joined the Massachusetts Medical Society in 1921 and had served on the Staff of the Memorial Hospitals. He had recently served as F. E. R. A. physician at Camp Curtis Wild in Westfield.

He is survived by his mother.

MacNAUGHTON—Peter J. MacNaughton, M.D., a retired lieutenant colonel in the United States Army medical corps, died at his home in Wenham, Massachusetts, June 8, 1934, aged 66.

He was born at Lake Linden, Michigan, and graduated in medicine from the University of Michigan. He began army service during the Spanish-American War, and served in the World War. He was later assigned to the army base in Boston, and was retired in 1931. He is survived by his widow, Mrs. Ethel MacNaughton, and a son, W. Rossiter MacNaughton, both of Wenham.

NOTICE

LAWRENCE CANCER CLINIC

Lawrence, Mass.,
June 6, 1934.

To the Physicians of the North Half of Essex County:
Dear Doctor:

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital, 1 Garden Street, Lawrence, upon Tuesday, June 19, at 10:00 A.M., will be a Demonstration Clinic with Channing C. Simmons, M.D., of Boston, Associate in Surgery at Harvard University Medical School, acting Surgeon-in-Chief to Collis P. Huntington Memorial Hospital, and member of the Cancer Commission of Harvard University, Boston, present as consultant. You are invited to accompany any of your patients whom you desire shall have this service, or to send them with a note, and a report will be returned to you. This service is gratis. Your attendance at the Clinic is always welcome.

This Clinic is endorsed by the Committee on Postgraduate Instruction of the Massachusetts Medical Society.

Committee:

Roy V. Baketel, M.D.
Chas. J. Burgess, M.D.
Frederick D. McAllister, M.D.
John J. McArdle, M.D.
Henry H. Nevers, M.D.
Thos. V. Uniac, M.D.
J. Forrest Burnham, M.D., *Chairman.*

REPORTS AND NOTICES OF MEETINGS

PLYMOUTH DISTRICT MEDICAL SOCIETY

A stated meeting of the Plymouth District Medical Society was held at Lakeville Sanatorium, April 25, 1934. Dr. Henry D. Chadwick, Commissioner of Health of Massachusetts, was the guest speaker of the evening. His address related to the control of some of the communicable diseases. He said in part, that in 1923 there were 9000 cases of diphtheria with 500 deaths in the state while in 1933 the morbidity had fallen to 540 cases with only 53 deaths. This reduction may be attributed largely to the immunization of children. It is best to immunize between the age of six months and one year, as it is during this period that the passive immunity present at birth begins to wane. By early immunization, cases in children of preschool age may be prevented. Toxoid, which contains no horse serum, is advised for children under six years of age, toxin-antitoxin after this age. Both products are available through the State Department of Health.

The use of pneumococcus serum for the treatment of lobar pneumonia will remain in the hands of a group of physicians fully acquainted with the technic of administration. At present it is of value only in Type I and Type II lobar pneumonia and must be used within the first four days of the disease. It must still be considered an experimental therapeutic agent. The Commonwealth or Harkness fund finances this work, at a cost of seventy-five to eighty dollars per patient, whereas the serum purchased from a private firm would cost between two and three hundred dollars.

Measles mortality has fallen to 0.16 per cent, perhaps because of better home care. Dr. McKhann of the Children's Hospital in Boston has shown that placental extract contains a substance that will give a passive immunity to an exposed child if administered within five days after exposure. After the seventh day it will modify the measles and produce a mild abortive attack. The latter procedure is the choice in children over six years of age as completely preventing the disease leaves the child susceptible to subsequent infection.

Temporary immunity to scarlet fever may be obtained with convalescent serum which, however, is too expensive for general use. Active immunization with toxoid is still in an experimental stage but has been found efficacious in controlling outbreaks in several institutions. No case of smallpox has been reported in the state for the past two years.

The decreased incidence of typhoid fever is one of the triumphs of sanitation and preventive medicine. While the water supply in several parts of the state is still not ideal, the great majority of recent cases have been traced to typhoid carriers. With the decrease in cases there will be fewer carriers and a further reduction in typhoid morbidity may be expected.

Tuberculosis remains the most important infectious disease and both for the sake of the patient and the community early diagnosis is imperative. This is often difficult by any physical examination, especially so in children, and in all suspicious cases an x-ray examination of the chest is indicated. Approximately one out of every 100 with a positive von Pirquet test can be shown to have pulmonary tuberculosis. The possibility of an undiagnosed adult case in the household as a source of infection of the child is very great.

ALUMNI ASSOCIATION OF BOSTON UNIVERSITY SCHOOL OF MEDICINE

At the annual meeting of the Alumni of the Boston University School of Medicine, Dr. Harold L. Babcock was elected president, Dr. Helmuth Ulrich, vice-president; Dr. Louis C. Howard, second vice-president; Dr. Rudolph Jacoby, secretary, and Dr. Harold W. Ripley, treasurer.

Speakers at the dinner, which was a feature of the occasion, included Dr. Harold L. Leland, Dr. Alexander S. Begg, dean of the school, Dr. H. L. Babcock, and Dr. Daniel L. Marsh, president of Boston University.

NEW ENGLAND SURGICAL SOCIETY

The 1934 Meeting of the New England Surgical Society will be held at Burlington, Vermont, Friday and Saturday, September 28 and 29.

JOHN M. BIRNIE, M.D., *Secretary.*

FIRST INTERNATIONAL CONGRESS OF ELECTRO-RADIO-BIOLOGY

The International Society of Radio-Biology announces that His Excellency Benito Mussolini on account of the favorable advice of the National-Council of Research, approved the initiative to call an International Congress of Electro-Radio-Biology. This First International Congress of Electro-Radio-Biology will take place from September 10-15, 1934, in the Doges Palace at Venice.

The Congress will be presided over by His Excellency the Marquis Guglielmo Marconi, President of the Royal Academy of Italy, President of the National Council of Research, State-Senator and by His Excellency, Count Giuseppe Volpi di Misurata, State-Minister, State-Senator.

The object of this Congress is to invite for a discussion Physicists, Chemists, Biologists, Naturalists, and Physicians, on biological actions of all radiations, in order to coördinate the respective investigations.

The biologist will learn from the physicist the theoretic and experimental basis of the physical researches on the vibratory and corpuscular phenomena. The physicist and the physico-chemist will learn from the biologist what are the influences that these phenomena have on cellular elements, complex tissues and on organic processes.

Moreover, the organizers of the congress hope to determine a new radio-biological tendency of many present physical and biological investigations.

The Congress intends to study the chemical and biological phenomena in respect to radiations.

For further information the request may be made to the General Secretary of the Congress, Dr. Giocondo Protti, S. Gregorio 173, Venice (Italy).

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

June 19—Lawrence Cancer Clinic. See page 1299.

July 24-31—The IVth International Congress of Radiology will be held in Zurich under the presidency of Professor H. R. Schnitz. General Secretary Dr. H. E. Walther, Gloriastrasse 14, Zurich.

August 18 - September 30—Medical Study Trip to Hungary. See page 975, issue of May 10.

September 3-6—American Public Health Association, at Pasadena, California. Dr. J. D. Dunshee, Chairman, Local Committee on Arrangements.

September 4, 5, 6—International Union Against Tuberculosis. For information address the National Tuberculosis Association, 450 Seventh Avenue, New York City.

September 10, 11, 12, and 13—American Congress on Physical Therapy will meet in Philadelphia at the Bellevue Stratford. For details write American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

September 10-15—First International Congress of Electro-Radio-Biology. See notice elsewhere on this page.

September 28-29—New England Surgical Society. See notice elsewhere on this page.

October 22 - November 2—1934 Graduate Fortnight of the New York Academy of Medicine. See page 1240, issue of June 7.

October 31 - November 2—Massachusetts State Nurses' Association, Hotel Statler, Boston. For information write Miss Helene G. Lee, R.N., 420 Boylston Street, Boston.

BOOKS RECEIVED FOR REVIEW

Corrective Physical Education. By Josephine Langworthy Rathbone. 292 pp. Philadelphia: W. B. Saunders Company. $2.50.

L'Eczéma du Nourrisson. Par les docteurs M. Péhu et R. Aulagnier. 174 pp. Paris: Gauthier-Villars, Editeur, 1934. 25 fr.

Urinary Analysis and Diagnosis. By microscopical and chemical examination. By Louis Heitzmann. Sixth Revised Edition. 385 pp. Baltimore: William Wood and Company. $5.00.

The Principles of Gynecology. A textbook for students and practitioners. By William Blair-Bell. Fourth Edition. 848 pp. Baltimore: William Wood and Company. $10.00.

Genealogy of Sex. Sex in its myriad forms, from the one-celled animal to the human being. By Curt Thesing. Translated from the German by Eden and Cedar Paul. 320 pp. New York: Emerson Books, Inc. $5.00.

New and Nonofficial Remedies, 1933. Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1933. 510 pp. Chicago: American Medical Association Press. $1.50.

Diseases Peculiar to Civilized Man. Clinical management and surgical treatment. By George Crile. Edited by Amy Rowland. 427 pp. New York: The Macmillan Company, 1934. $5.00.

Obstetric Medicine. The diagnosis and management of the commoner diseases in relation to pregnancy. Edited by Fred L. Adair and Edward J. Stieglitz. 743 pp. Philadelphia: Lea & Febiger. $8.00.

The Chemistry of the Hormones. By Benjamin Harrow and Carl P. Sherwin. 227 pp. Baltimore: The Williams & Wilkins Company. $2.50.

BOOK REVIEWS

Hypertension and Nephritis. By Arthur M. Fishberg. Third Edition, thoroughly revised. 668 pp. Philadelphia: Lea & Febiger. $6.50.

This book maintains its place in the field of medicine as the most complete work offered to the profession. It is a reference book: a practical manual, a summary of present-day ideas of hypertension and nephritis; and best of all, it is something which can be used by anyone interested in this field.

The tests for kidney function are described clearly. There are five tests given to determine concentration and dilution: the whys and wherefores are stated definitely.

The sections on Uremia; Hypertension; Arteriosclerosis; and Essential Hypertension are well done.

The psychical aspect of chronic disease is presented in a most understanding way, and particularly so in Essential Hypertension.

This book is one to be owned and not lent. It is an outstanding work of first quality, presenting Hypertension and Nephritis thoroughly and practically.

Japanese Medicine. By Y. Fujikawa. Translated by John Ruhräh. 114 pp. New York: Paul B. Hoeber, Inc. $1.50.

This little book is a translation from the German of a short history of Japanese medicine written in 1911. It has been brought up to date by a second Japanese author and skillfully translated by Dr. Ruhräh of Baltimore. The various chapters cover the subject from the time of antiquity throughout the ages to the more recent history of Japanese medicine, already familiar to most of the medical world. The facts appear to be well presented and one is surprised at the number of important advances made by Japanese workers. As an appendix there is a chronological table of Japanese medicine and the book is well indexed. Although perhaps not up to the high standard set by previous volumes in this series, this book should find a place in the libraries of all medical historians.

Transactions of the American Gynecological Society. Volume 58. 1933. Edited by Otto H. Schwarz. 318 pp. St. Louis: C. V. Mosby Company, 1934.

The bulk of the Transactions edited by Otto Schwarz, is made up of three papers on the Toxemia of Pregnancy and five on Cancer of the Uterus. There is a discussion of the occipitoposterior position, based on a series of 657 cases, describing the internal rotation of the head to anterior position in the opposite oblique diameter, with forceps, above the brim of the pelvis. The most arresting paper is that by Lewis on the Effects of Theelin in Gonorrheal Vaginitis in Children. Specific vaginitis in little girls is a notoriously unsatisfactory condition, from the standpoint of treatment and results. Lewis briefly reports eight cases treated only by injections of this hormone, with astounding results. Follow-up examinations several months later showed a gratifying percentage of apparent cures. The volume contains an obituary note on William Lambert Richardson, beloved of hundreds of Harvard graduates of the nineties and early nineteen hundreds.

The Pocket Anatomy. By C. H. Fagge. Ninth Edition. Students Aids Series. 333 pp. Baltimore: William Wood and Company. $2.00.

Of the much abused and maligned group of so-called "Quiz compends", Fagge's is one of the oldest and best. Published originally by George Brown, M.R.C.S., in 1876 as "Aids to Anatomy," this book was reissued under its present title in 1881 and its first four editions were supervised by Edward Cotterell, M.D. The present editor began his work with the fifth edition in 1901 and in this present ninth edition has brought the publication to date. For the first time, there is used in this edition a new English terminology, approved by the Anatomical Society of Great Britain and Ireland, which appears to be a happy compromise between the B.N.A. and the older vernacular nomenclature. A glossary tabulates the most notable changes from the terminology used in the eighth edition. The section on the brain has been revised in the light of recent physiologic investigations on the Central Nervous System; and the surgical anatomy of the Autonomic Nerve System has been revised in the light of recent progress in this department. Naturally such a work as "The Pocket Anatomy" cannot, and is not intended to, be exhaustive. Apparently the mammary glands are among the more important of its major and perhaps inevitable omissions. Such a work is, of course, not designed to replace the standard systematic textbooks of Anatomy. It has, however, a definite place of value as a manual or syllabus for purposes of study and review.

Die Digitalisbehandlung. Von Prof. Dr. Ernst Edens. Second Edition. 154 pp. Berlin and Vienna: Urban und Schwarzenberg, 1934.

This extremely instructive monograph crystallizes a vast personal experience with the use of digitalis. It deals with its use in conditions associated both with a regular and with an irregular heart. The author considers the action of digitalis from the point of view of its "diastolic" (slowing of the heart) and "systolic" effects (alleviation of signs of decompensation without slowing of heart). He gives as the indications (sine qua non) for the use of digitalis, cardiac hypertrophy plus evidence of cardiac failure. As in most continental works, emphasis is placed upon the advantages of strophanthin over digitalis in its "systolic" effects. Excellent discussions are given of auricular fibrillation, pulsus alternans and the prognostic significance of bigeminy. The impossibility of predicting just what digitalis will do in the individual case and the need for cautious experimentation are stressed. The author shows how the drug may inhibit certain conditions such as extrasystoles, auricular fibrillation or pulsus alternans in one case, which it might tend to produce in another. A statistical analysis of digitalis effects, although of no value in predicting the response in a given case, but giving a clue as to the expected result, would enhance the value of this study. Without this, the unusual and atypical effects assumed an exaggerated importance. The volume, which offers an excellent résumé of practical cardiac pharmacodynamics, is written in clear, concise and entirely readable German and can be highly recommended.

The Queen Charlotte's Textbook of Obstetrics. By Aleck W. Bourne and others. Third Edition. 679 pp. Baltimore: William Wood and Company. $6.00.

Ever since the publication of its first edition, in 1927, the Queen Charlotte's Textbook of Obstetrics has represented the views and methods practiced by those constituting the Staff of Queen Charlotte's Maternity Hospital. This third edition, consequent upon subsequent changes in the Hospital Staff, brings to the Board of Editors of this volume Drs. Bourne, Davies, Rivett, Phillips, Lane-Roberts, and Williams, the last of whom has replaced Dr. Bannister. Some portions of this edition have been largely rewritten, including the chapters on Mal-Presentation and Anesthesia. In other parts extensive revisions have been made and new procedures and techniques, such as the Zondek-Aschheim Test and the Kielland Forceps have been added. Twenty new illustrations have been added bringing the total to 301 text figures with four colored plates. Queen Charlotte's Hospital is to British Obstetrics what the Rotunda is to Irish and this volume, which has become a standard among obstetric textbooks, is also of value to the discriminating student of comparative obstetrics, as fairly representing the practice and teaching of the members of this Hospital Staff.

Traité de Physiologie. Tome I. By Prof. G. E. Roger and Prof. Léon Binet. 1140 pp. Paris: Masson et Cie. 145 fr.

This volume, covering general physiology, is the eighth to appear in the system of physiology edited by Roger and Binet. It is an interesting presentation of a wide range of material. Roger contributes a rather general summary of the properties of living matter and touches briefly on the vitamins, enzymes, and hormones in relation to life, and ends with an interesting discussion of senescence and death.

Policard contributes a short section on the general aspects of cellular physiology. Verne presents a section on tissue culture, which is short but excellent.

The discussion of the vitamins is decidedly disappointing and far from up to date.

The most ambitious section of the volume is that by Blanchetiere discussing the constituents of protoplasm, the constituents of a nucleus, of connective tissue, and the physiological rôle of the mineral elements. Perhaps the most interesting section to practicing physicians is that contributed by Lacassagne on the action of x-rays and radioactive substances on living matter. This section, while short, is excellently done and written in a highly interesting style, perhaps a bit too speculative but nevertheless thought provoking. A section on ferments by Ambard and one on venins by Arthus conclude the volume.

A serious inconvenience is the absence of an index.

Text-Book of Gynecology for Students and Practitioners. By James Young. Third Edition. 411 pp. New York: The Macmillan Company. $3.75.

This is the third edition of a book by a master of gynecology. It is, in fact, an up-to-date textbook on the subject. It tells everything that a medical student should know on which to base his later clinical experience and tells it all admirably in simple, easily understood English, accompanied by satisfactory illustrations which do not fail to explain and illustrate the subjects dealt with.

From a teacher's standpoint, it is particularly valuable because it emphasizes the description of gynecological conditions without going into too great detail in regard to surgical operations, although the main principles involved in the surgical cure of gynecological conditions is described.

Especially to be commended are the chapters on menstruation and a description of the hormones of the ovary and the action of the anterior lobe of the pituitary gland. An easily understood illustration showing the time relation between ovarian and uterine cycles with the increase and drop of estrin and progestin is worth looking at.

Dr. Young's book can be recommended to those who wish to review the subject and to students who are beginning it.